nano
THREAD

MASTER
THE SMALLEST AND MOST PRECISE
THREADED CONNECTIONS

nano

DC®

THREADING SOLUTIONS

EN-ID nano.3

nano

THREADING SOLUTIONS

THE THREADING
APPLICATIONS SPECIALIST

Certificate CH07/0649

The management system of

DC Swiss SA

Grand rue 19, 2735 Malleray, Switzerland

has been assessed and certified as meeting the requirements of

ISO 9001:2015

For the following activities

Design, development, manufacturing, marketing, sales and distribution of cutting tools.
Expertise in threading technology.

This certificate is valid from 19 June 2024 until 18 June 2027 and remains valid subject to satisfactory surveillance audits.

Issue 8. Certified since 07 September 2007

Authorised by
Daniel Willemin

Authorised by
Jan Meemken

SGS Société Générale de Surveillance SA
Technoparkstrasse 1, 8005, Zurich, Switzerland
t +41 (0)44 445-16-80 - www.sgs.com

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Département fédéral de l'économie, de la formation et de la recherche DEFR
Secrétariat d'Etat à l'économie SECO
Service d'accréditation suisse SAS

En vertu de l'ordonnance sur l'accréditation et la désignation du 17 juin 1996 et sur la base de l'avis de la Commission fédérale d'accréditation, le Service d'accréditation suisse (SAS) délivre à

DC NANO TOOLS SA
Métrologie
Grand-rue 19
2735 Malleray

Durée de l'accréditation :
06.01.2021 au 05.01.2026
(1ère accréditation: 06.01.2016)

l'accréditation en tant que

Laboratoire d'étalonnage pour les longueurs

Norme internationale : ISO/CEI 17025:2017
Norme suisse : SN EN ISO/CEI 17025:2018

3003 Berne, le 17.11.2020
Service d'accréditation suisse SAS

Responsable du SAS
Konrad Flück

Le SAS est signataire des accords multilatéraux de l'EA (European co-operation for Accreditation) pour les domaines d'essais, d'étalonnage, d'inspection et de certification de systèmes de management, de certification de personnes et de certification de produits, de processus et de prestations de services, de l'IAF (International Accreditation Forum) pour les domaines de certification de systèmes de management et de certification de produits, de processus et de prestations de services, et de l'ILAC (International Laboratory Accreditation Cooperation) pour les domaines d'essais et d'étalonnage.

2024

CERTIFICAT

Agence de l'énergie pour l'économie

DC Swiss SA est active !

DC Swiss SA participe à l'Agence de l'énergie pour l'économie depuis 2016 et s'engage ainsi pour la protection durable du climat.

DC Swiss SA mise sur l'offre suivante de l'AEnEC:

Convention d'objectifs: L'entreprise s'est engagée à améliorer son efficacité énergétique et à réduire ses émissions de gaz à effet de serre sur une période de dix ans. Pour ce faire, elle met en œuvre les mesures d'amélioration prévues dans la convention et l'atteinte de ses objectifs est contrôlée chaque année.

05.06.2024

Frank Ruepp
Agence de l'énergie pour l'économie

Martin Kernen
Agence de l'énergie pour l'économie

AGENCE DE L'ÉNERGIE POUR L'ÉCONOMIE

SUMMARY

DC SWISS SA

Since 1940, DC SWISS SA has been designing and manufacturing medium and top-quality threading tools in the heart of the Bernese Jura, the Swiss cradle of micromechanics and machine tools.

As a major player in the global threading tool market, DC SWISS SA has positioned itself as a specialist in a sector where quality, reliability and performance are essential. Excellence in product quality, technical support and customer training are priorities for this burgeoning industrial company.

The high-performance DC threading tools meet the strictest technological standards and are the result of numerous studies and the expertise gained by the company over many years.

Each tool undergoes multiple tests to guarantee optimum quality. DC SWISS SA offers our multi-generational know-how to our customers to help them find comprehensive solutions that fully meet their needs in their particular area of activity.

DC NANO TOOLS SA

The DC SWISS metrology office is recognised as a Calibration Laboratory for length standards by the Swiss Accreditation Service. It is therefore able to offer a calibration and metrology service in the field of screw connections.

DC NANO TOOLS SA, a member of the DC SWISS Group, is SCS 0143 certified. This certification authorises it to calibrate plug gauges and ring gauges with flank diameters from 0.1 to 3.0 mm and for outside diameters from 0.1 to 3.5 mm, in accordance with the international standard ISO 17025.

This certification is the most comprehensive on the international market.

OUR VALUES

PERFORMANCE

Performance is our primary concern in developing new solutions and improving our products. Value for money over time is the foundation on which we build relationships of trust with our customers.

KNOW-HOW

We use our know-how to create unique ways of resolving problems and apply all the knowledge, experience and skills we have gained since 1940.

RELIABILITY

We know that long-term relationships are built on trust, transparency and the ongoing commitment of each of our employees to provide our customers with tools and services of uncompromising quality.

SWISS QUALITY – 100 % MADE BY DC SWISS

All production stages in our workshops are a guarantee of Swiss Quality, from the development of the tool to manufacturing and final inspection. The quality of our tools is an essential factor in achieving your machining targets and assembling your parts to perfection.

CUSTOMER-FOCUSED CULTURE

Your satisfaction is our priority. Our employees are committed to excellence in providing customer support services and offering customers their skills, flexibility and motivation, together with a clear sense of innovation and quality.

DC SWISS IN FIGURES

9200 tools in our catalogues.

5000 Over 5'000 tools are produced in our workshops each day.

120 qualified employees.

98 % or more of our "catalogue" tools are available from stock for faster turnaround times.

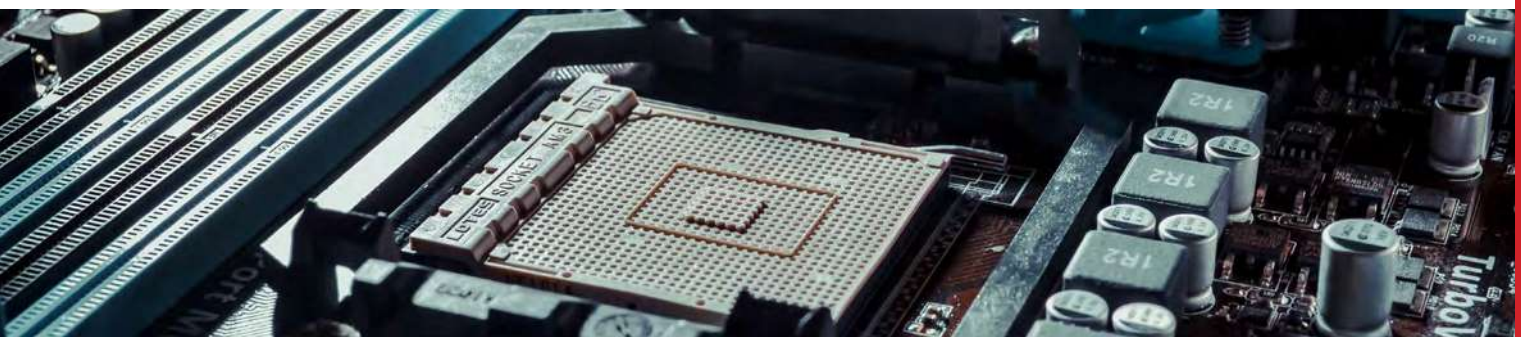
60 We work together with distributors and technology partners around the world.

WE ARE HERE, FOR YOU

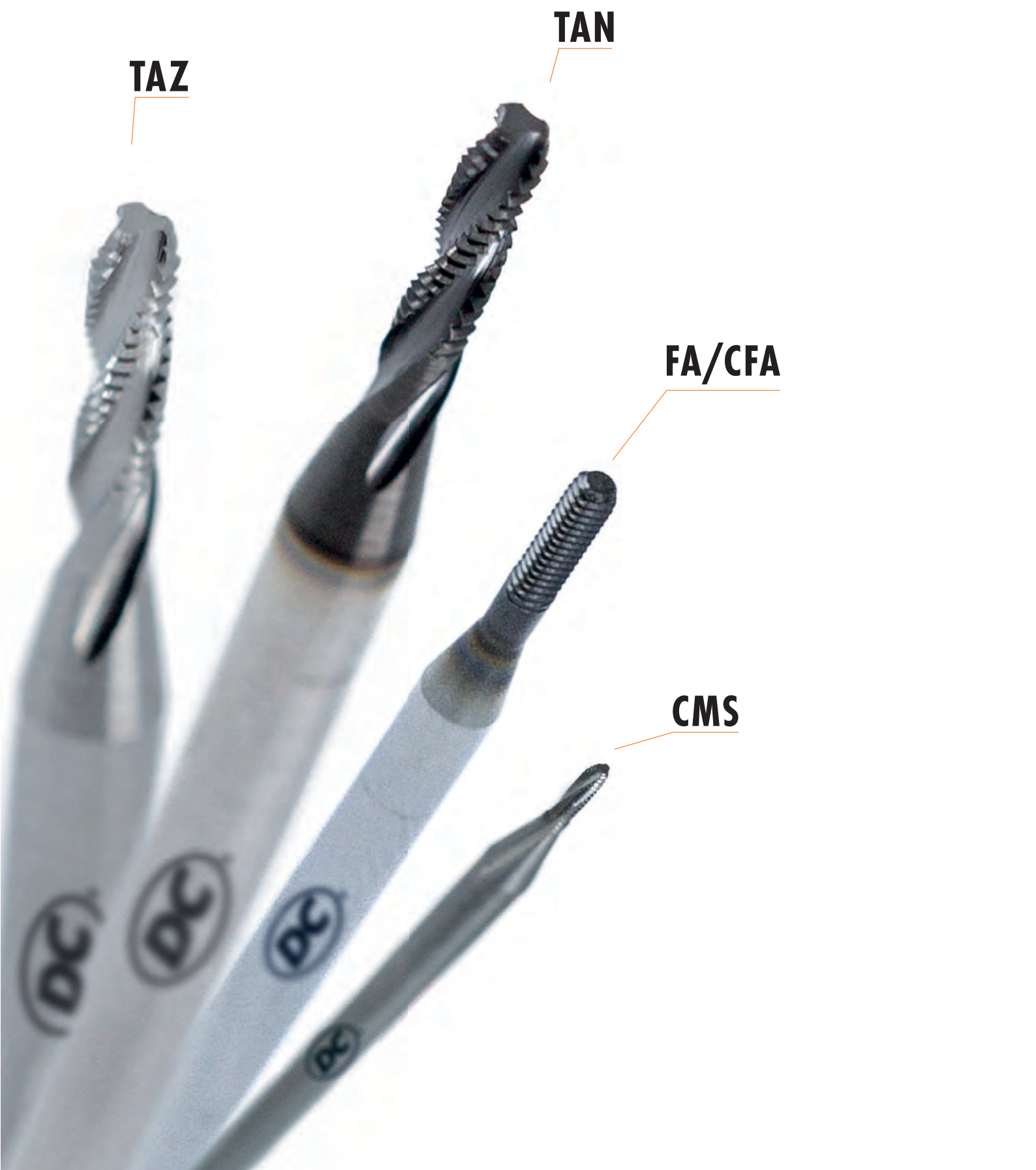
SCS QUALITY CERTIFICATION
EXPRESS LEAD TIMES
FULL APPRAISALS (TEST CENTRE)
BESPOKE DEVELOPMENT WORK
RECOMMENDATIONS
TECHNICAL ASSISTANCE
TRAINING
LOGISTICS SUPPORT
CUSTOMER-FOCUSED CULTURE

MEETING YOUR MOST DEMANDING REQUIREMENTS IS OUR PRIORITY

MASTER THE SMALLEST AND MOST PRECISE THREADED CONNECTIONS



OUR TAPS AND THREAD FORMERS



FEATURES

High quality tools
It starts with the use of high-quality raw materials.

VS coating
Improved wear resistance thanks to VS coating. Gives a longer tool life.

TAN

PM

VS

Chip control
- High-performance chip control thanks to perfectly ground flutes
- Ensure a long service life

TAZ

PM

VS

High quality surface
- Perfect surface finishing due to appropriate relief angles
- Easy to screw in

CMS

VHM CAR

VS

Guaranteed gaugeable thread
- Revolutionary geometry guarantees perfect pitch control

FA / CFA

PM

VS

VHM CAR

VS

Worried about screws pulling out?
- By forming the measurable resistance increases:
  + 30 % more static resistance
  + 100 % more dynamic resistance

TBF50

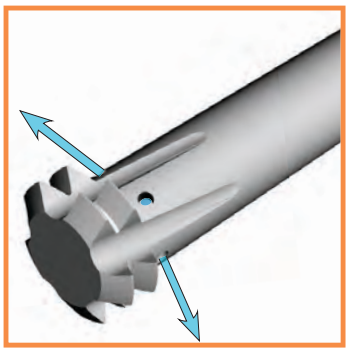
PM

For lead free brass
- For through and blind holes up to 2 x D

GWi SERIES 3000

Ø 0.8 - 6.5 mm

VX COATED



Ø 6.5 - 20 mm

GWi SERIES 3000

OUR THREAD WHIRL CUTTERS

FEATURES

VS and VX coating

Improved wear resistance thanks to VS coating. Gives a longer tool life.

VX coating: improved wear resistance and a longer tool life in stainless steels and nickel alloys thanks to the VX coating.

GW
SERIES 1000

VS

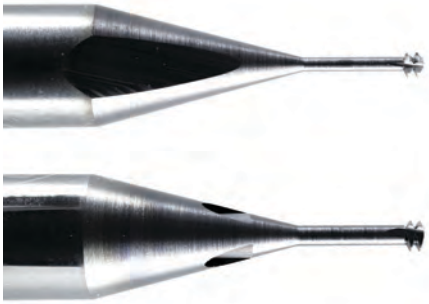
- Universal application
- High process security
- Suitable for the smallest dimensions (from 0.3 mm)
- More space for chip evacuation

GW
SERIES 2000

VS

- Feed rate multiplied by number of teeth
- Less wear, longer tool life
- The number of teeth varies depending on the size

GW/GWi
SERIES 3000



VS
VX

- Improved chip evacuation
- Double the tool life by GWi
- Secure process, reduction in NC-corrections
- No cold welding

VX - The best solution for stainless steels and nickel alloys

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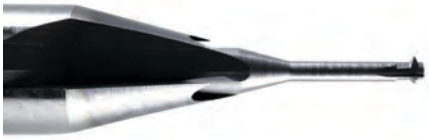
GWi
SERIES 5000



VS
LH-rot.

For perfect threads without burrs

GWi
SERIES 6000

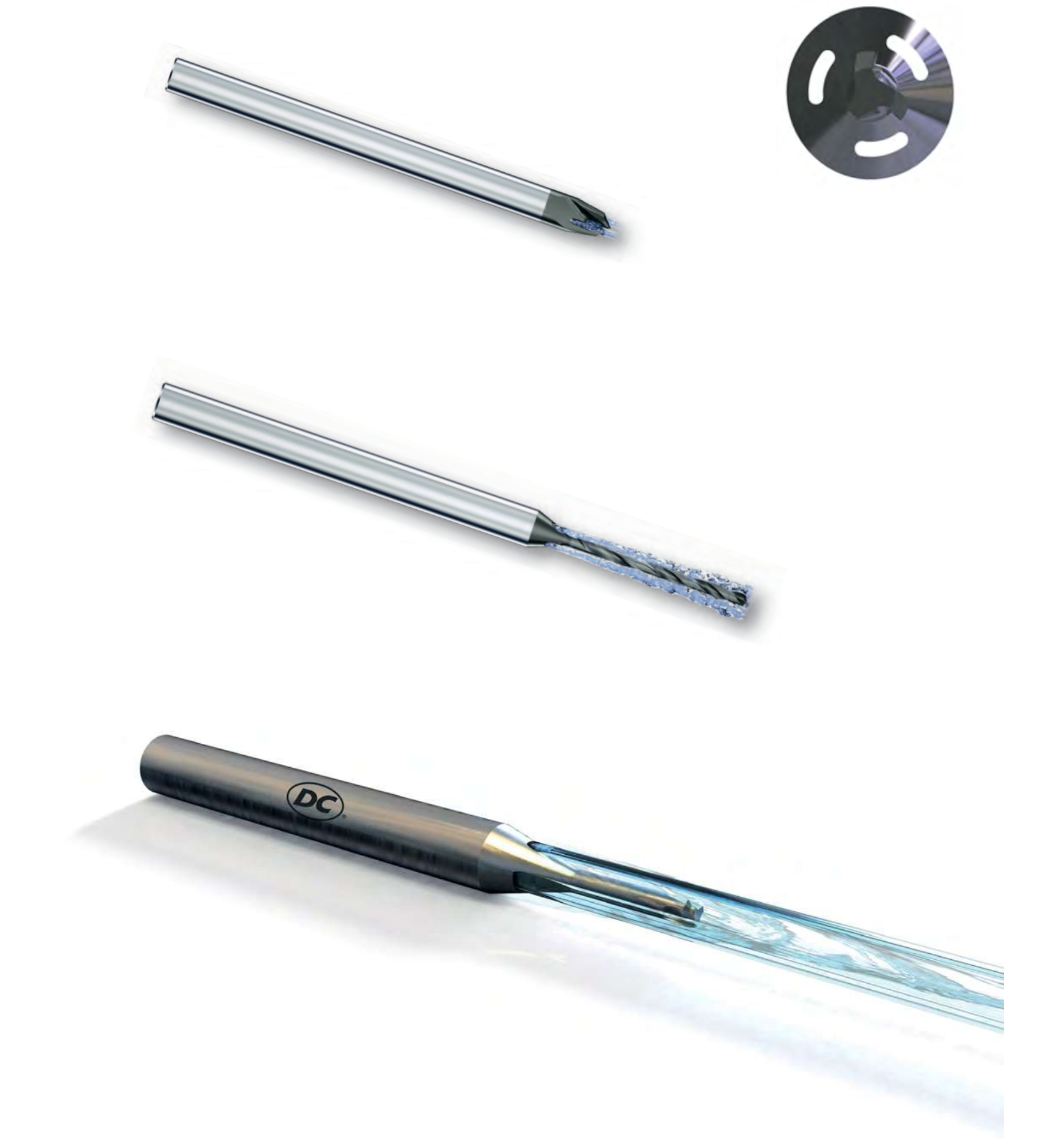
VS
RH-rot.

For perfect threads without burrs
On request

NEW

For greater stability and precision in 2 x D applications.
All our GW / GWi thread whirlers in new versions with shorter clearance (l_3).

THE PERFECT THREAD
GWi5000 & GWi6000



OPTIMUM PERFORMANCE

Never before has the need to offer a perfect threading system been so important. Demand in the threading industry is becoming increasingly sophisticated and requires a flawless profile. That's why we've developed a tool based on the GWi series that **ensures burr-free threads**.

The operation consists of milling the flanks of the thread while working on the internal diameter. Optimum drilling is essential for successful threading. To achieve this, DC SWISS also recommends the appropriate centre drill and twist drill.

CHARACTERISTICS

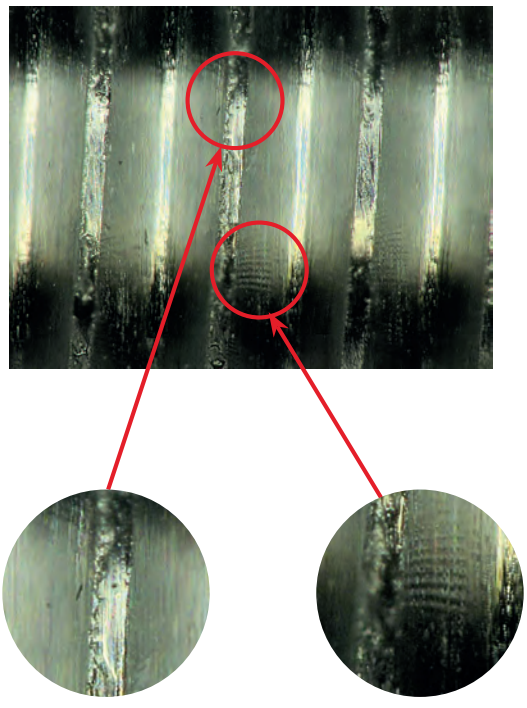
The ultra-fine carbide tool with VS coating offers excellent heat resistance, making it an ideal combination for high-performance machining.

Example:	**Material:**	Titanium grade 4
	Machine:	Tornos Evo Deco
	Type of hole:	Blind hole
	Thread size:	M1.8 6H
	Depth:	2 x D_1
	Coolant:	Cutting oil
	Vc & Feed rate:	30 m/min & 0.03 mm/tooth

2500 PERFECT THREADS
1 NC CORRECTION

Number of NC corrections **GWi5000**: 1X
Number of NC corrections with conventional tool: 5X

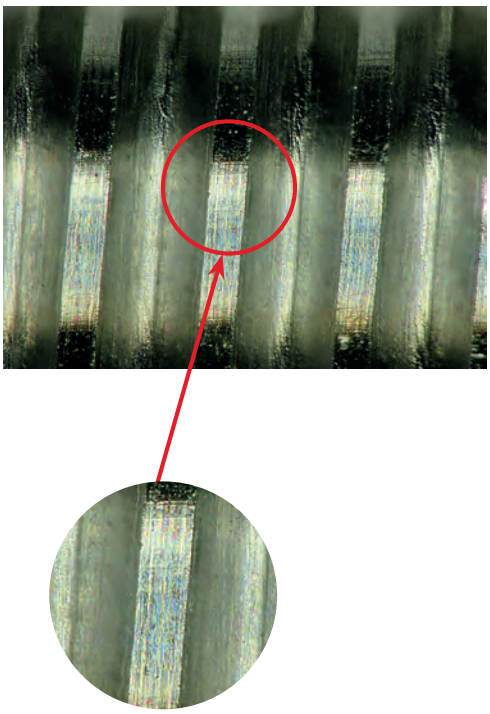
Conventional machining



Burrs Vibrations

Perfect thread

GWi5066VS M1.8x0.35

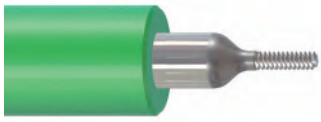
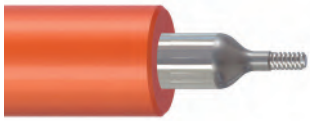


No burrs & no vibrations

OUR NANO THREAD GAUGES

SPECIFICATIONS OF NANO GAUGES

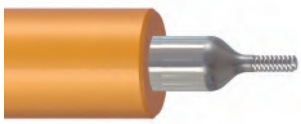
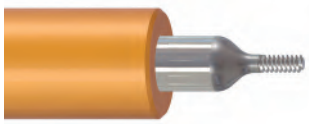
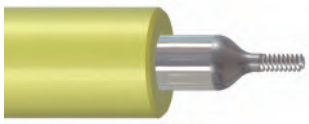
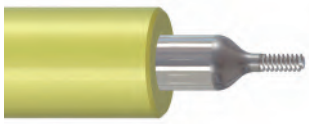
Thread plug gauges

DN01 **Go**		Plug gauge for **production** "**Go**" made of solid carbide handle Ø d_2 = 6 mm
DN01 **Go**		Plug gauge for **metrology** "**Go**" made of solid carbide handle Ø d_2 = 6 mm
DN02 **NoGo**		Plug gauge for **metrology** "**NoGo**" made of solid carbide handle Ø d_2 = 6 mm
DN5701-1 **Go**		Plug gauge for **production** "**Go**" made of solid carbide handle Ø d_2 = 3 mm
DN5701-1 **Go**		Plug gauge for **metrology** "**Go**" made of solid carbide handle Ø d_2 = 3 mm
DN5701-2 **NoGo**		Plug gauge for **metrology** "**NoGo**" made of solid carbide handle Ø d_2 = 3 mm
DH5701-1 **Go**		Plug gauge for **production** "**Go**" made of HSSE-PM handle Ø d_2 = 2.8 mm

Thread ring gauges

DZ04 **Go**		Ring gauge for **production** "**Go**" in Phynox KL Ø d_2 = 20 mm
DZ04 **Go**		Ring gauge for **metrology** "**Go**" in Phynox KL Ø d_2 = 20 mm
DZ14 **NoGo**		Ring gauge for **metrology** "**NoGo**" in Phynox KL Ø d_2 = 20 mm

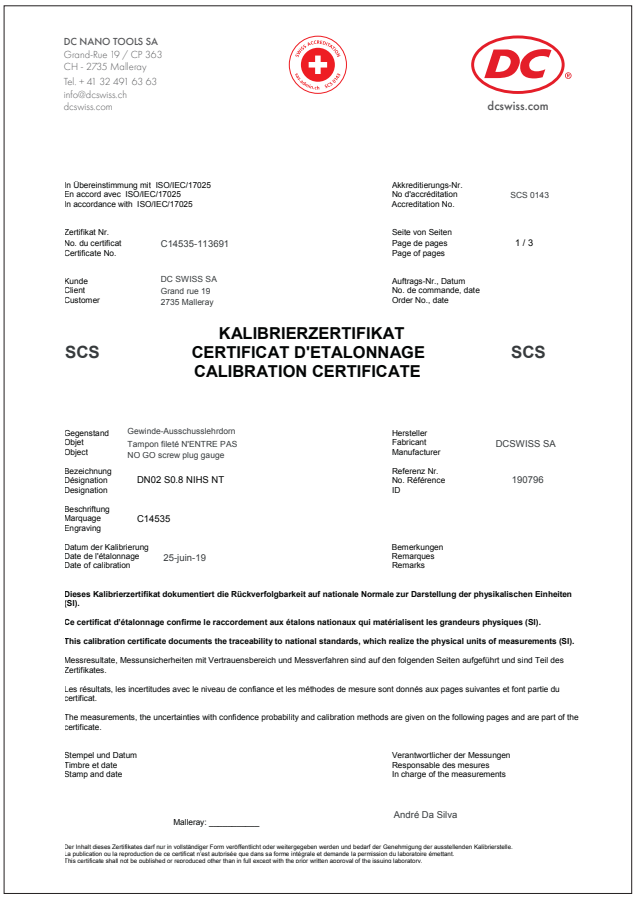
SPECIFICATIONS OF NANO GAUGES

Thread ring gauges	**DN04 Go**		Ring gauge for **production** "**Go**" in Phynox KL handle Ø d_2 = 6 mm
	DN04 Go		Ring gauge for **metrology** "**Go**" in Phynox KL handle Ø d_2 = 6 mm
	DN14 NoGo		Ring gauge for **metrology** "**NoGo**" in Phynox KL handle Ø d_2 = 6 mm
Plug check gauges	**RN05-1 Go/Go**		Plug check gauge to check the quality of the "**Go**" ring gauge in solid carbide handle Ø d_2 = 6 mm
	RN15-1 Go/NoGo		Plug check gauge to check the quality of the "**NoGo**" ring gauge in solid carbide handle Ø d_2 = 6 mm
	RN05-2 NoGo/Go		Plug check gauge to check the quality of the new "**Go**" ring gauge in solid carbide handle Ø d_2 = 6 mm
	RN15-2 NoGo/NoGo		Plug check gauge to check the quality of the new "**NoGo**" ring gauge in solid carbide handle Ø d_2 = 6 mm
Master plug gauges	**RN05-3 WEAR**		Master plug gauge **WEAR** to check the wear of the ring gauge "**Go**" in solid carbide handle Ø d_2 = 6 mm
	RN15-3 WEAR		Master plug gauge **WEAR** to check the wear of the ring gauge "**NoGo**" in solid carbide handle Ø d_2 = 6 mm
Calibration	**EN00**		Calibration thread plug gauge for the calibration of measuring machines in solid carbide handle Ø d_2 = 3 mm

RINGS + PLUGS CERTIFICATE

Our DC NANO TOOLS SA metrology laboratory, accredited SCS 0143, in accordance with ISO/IEC/17025, measures and calibrates all thread plug gauges.

The paid certificate is available on request.



DC NANO TOOLS SA
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CH - 2735 Malleray
Tel. + 41 32 491 63 63
info@dcswiss.ch
dcswiss.com

dcswiss.com

In Übereinstimmung mit ISO/IEC/17025
En accord avec ISO/IEC/17025
In accordance with ISO/IEC/17025

Akkreditierungs-Nr.
No d'accréditation
Accreditation No. SCS 0143

Zertifikat Nr.
No. du certificat
Certificate No. C14535-113691

Seite von Seiten
Page de pages
Page of pages 1 / 3

Kunde
Client
Customer DC SWISS SA
Grand rue 19
2735 Malleray

Auftrags-Nr., Datum
No. de commande, date
Order No., date

SCS

KALIBRIERZERTIFIKAT
CERTIFICAT D'ETALONNAGE
CALIBRATION CERTIFICATE

SCS

Gegenstand
Objet
Object Gewinde-Ausschusslehrdorn
Tampon fileté N'ENTRE PAS
NO GO screw plug gauge

Hersteller
Fabricant
Manufacturer DCSWISS SA

Bezeichnung
Désignation
Designation DN02 S0.8 NIHS NT

Referenz Nr.
No. Référence
ID 190796

Beschriftung
Marquage
Engraving C14535

Datum der Kalibrierung
Date de l'étalonnage
Date of calibration 25-juin-19

Bemerkungen
Remarques
Remarks

Dieses Kalibrierzertifikat dokumentiert die Rückverfolgbarkeit auf nationale Normale zur Darstellung der physikalischen Einheiten (SI).

Ce certificat d'étalonnage confirme le raccordement aux étalons nationaux qui matérialisent les grandeurs physiques (SI).

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).

Messresultate, Messunsicherheiten mit Vertrauensbereich und Messverfahren sind auf den folgenden Seiten aufgeführt und sind Teil des Zertifikates.

Les résultats, les incertitudes avec le niveau de confiance et les méthodes de mesure sont donnés aux pages suivantes et font partie du certificat.

The measurements, the uncertainties with confidence probability and calibration methods are given on the following pages and are part of the certificate.

Stempel und Datum
Timbre et date
Stamp and date

Verantwortlicher der Messungen
Responsable des mesures
In charge of the measurements

Malleray: _____

André Da Silva

All thread ring gauges are controlled to standards manually with thread plug check gauges. These all have a SCS calibration certificate.

The paid certificate is available on request.

DC NANO TOOLS SA
Grand-Rue 19 / CP 363
CH - 2735 Malleray
Tel. + 41 32 491 63 63
info@dcswiss.ch
dcswiss.com

dcswiss.com

In Anlehnung an ISO/IEC/17025
En référence à ISO/IEC/17025
Referring to ISO/IEC/17025

Zertifikat Nr.
No. du certificat
Certificate no. B21567

Seite von Seiten
Page de pages
Page of pages 1 / 2

Kunde
Client
Customer DC SWISS SA
Grand rue 19
2735 Malleray

PRÜFZERTIFIKAT
CERTIFICAT DE CONTRÔLE
CERTIFICATE OF MEASUREMENT

Gegenstand
Objet
Object Gewindelehrring GO
Jauge bague filetée GO
GO thread ring gauge

Hersteller
Fabricant
Manufacturer DCSWISS SA

Bezeichnung
Désignation
Designation DN04 S1 5h GO

Referenz Nr.
No. de référence
Reference no. 200753

Beschriftung
Marquage
Marking B21567

Kalibriert durch
Étalonné par
Calibrated by MRO

Datum der Kalibrierung
Date de l'étalonnage
Date of calibration 24-juin-24

Bemerkungen
Remarques
Remarks

Dieses Prüfzertifikat dokumentiert die Rückverfolgbarkeit auf nationale Normale zur Darstellung der physikalischen Einheiten (SI).

Ce certificat de contrôle confirme le raccordement aux étalons nationaux qui matérialisent les grandeurs physiques (SI).

This certificate of measurement documents the traceability to national standards, which realize the physical units of measurements (SI).

Messresultate, Messunsicherheiten mit Vertrauensbereich und Messverfahren der verwendeten Prüfdorne sind auf deren Zertifikaten aufgeführt.

Les résultats, les incertitudes avec le niveau de confiance et les méthodes de mesure des rapporteurs sont donnés sur leurs certificats respectives.

The measurements, the uncertainties with confidence probability and calibration methods from the used check gauges are given on their certificates.

Stempel und Datum
Timbre et date
Stamp and date

Verantwortlicher der Prüfung
Responsable du contrôle
Responsible for the control

Malleray

NORM NIHS 06-12: COMPARING ST

THREAD PLUG GAUGES

	STB NT/RT	NIHS 06-12
Rounding of pitch and external Ø	to 1µm	to 0.1µm
Pitch tolerance	± 1µm/revolution	± 0.3µm/l_2
Tolerance of partial flank angles	from P0.08 = ± 58' to P0.3 = ± 20'	from P0.08 = ± 78' to P0.3 = ± 21' (= 100 % TD2)
External Ø NoGo thread plug gauge	profile with full flanks (pointed)	profile with shortened flanks
Thread run-in	not specified	removal of the incomplete thread, chamfer or point
Handle	not specified	not specified
Permissible measurement uncertainty on the pitch Ø	not specified	not specified
Certification requirements	not specified	not specified

THREAD RING GAUGES

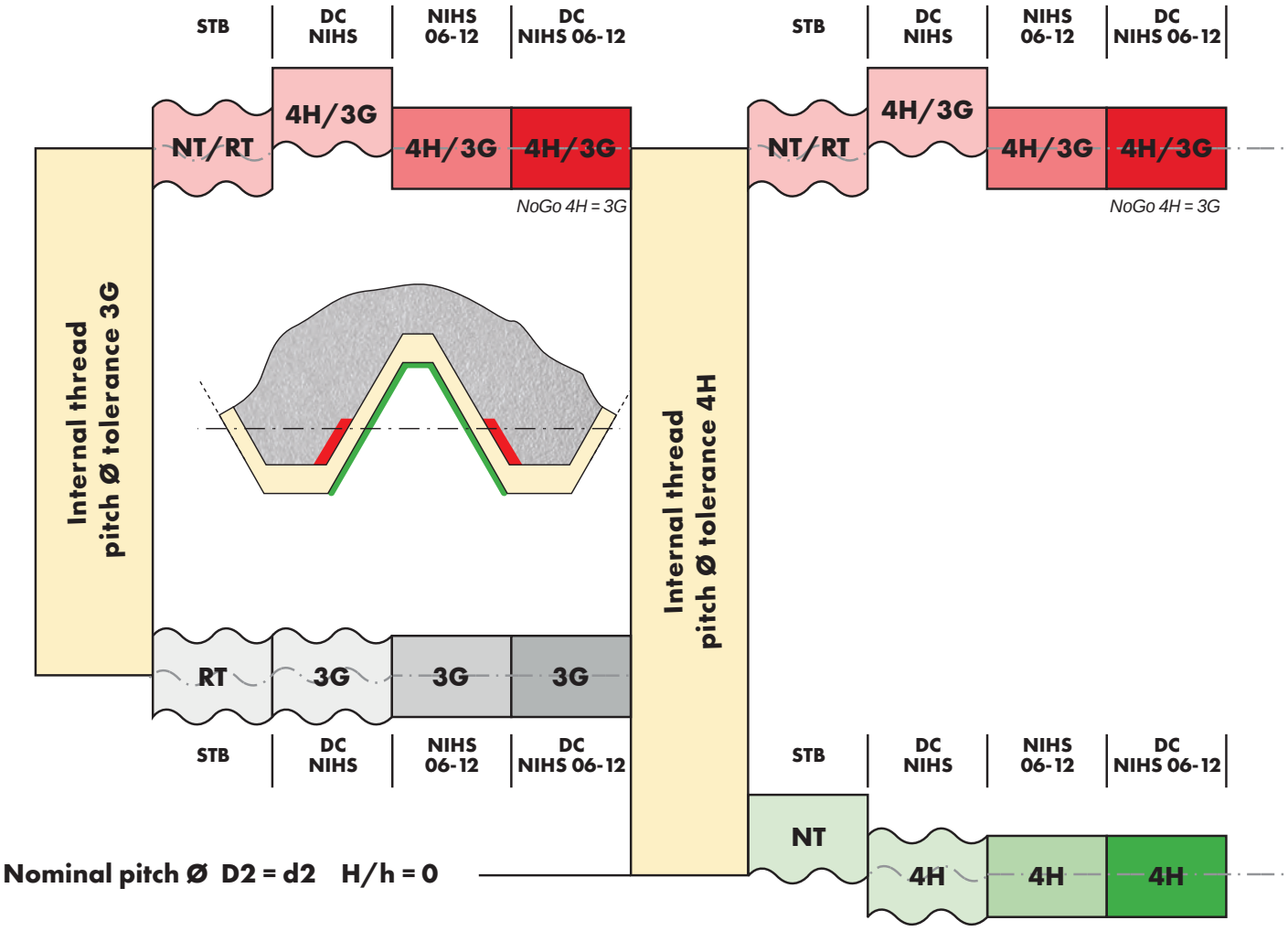
	STB NT/RT	NIHS 06-12
Rounding of pitch and external Ø	to 1µm	to 0.1µm
Pitch tolerance	± 1µm/revolution	± 0.8µm/l_2
External Ø NoGo thread ring gauge	profile with full flanks (pointed)	profile with shortened flanks
Thread run-in	not specified	with or without chamfer
Handle	not specified	not specified
Checking the thread ring gauges	not specified	specification of the inspection thread plug gauges
Permissible measurement uncertainty of the pitch Ø of the thread plug gauges	not specified	not specified
Requirements for the certification of inspection thread plug gauges	not specified	not specified

TANDARDS AND INTERPRETATIONS

DC SWISS NIHS 06-12		
to 0.1µm	rounding difference up to 0.5µm	∿ = representation of the rounding differences (see table with the pitch Ø)
± 0.3µm/l_2	limits the risk of profile shift	see detail 1.1 and 1.3
P ≤ 0.2 = ± 24' P ≥ 0.25 = ± 18'	limits the deviation of the profile	see detail 1.2 and 1.3
profile with shortened flanks	a thread gauge with shortened flanks enables correct control of the pitch Ø, while maintaining the minimum profile	see detail 1.4
removal of the incomplete thread, with chamfer	controls the depth to the last full thread, facilitates positioning	see detail 1.5
Ø6mm	ergonomic	
± 1.9µm		
SCS		

DC SWISS NIHS 06-12		
to 0.1µm	rounding difference up to 0.5µm	∿ = representation of rounding differences (see table with pitch Ø)
± 0.8µm/l_2	limits the risk of profile shift	
profile with shortened flanks	the thread ring gauge does not rest on the external Ø	see detail 2.1
with chamfer	prevents deformation or breakage of the 1st incomplete thread, facilitates setting	see detail 2.2
Ø6 or Ø20mm without knurling	ergonomic, avoids excessive force	
specification of the inspection thread plug gauges	the thread ring gauges are certified by means of inspection thread plug gauges	
± 1.9µm		
SCS certified inspection thread plug gauges		

POSITION OF THE PITCH Ø



Tolerance classes for internal threads	
3G5H	3G6H
4H5H	4H6H

All threading tools and gauges are marked with this first grade only.

Unless explicitly stated otherwise, tolerance 3G5H applies as standard.

- The tolerance classes 3G5H and 3G6H can be used to produce parts before coating (blanks, raw parts or semi-finished parts) or also for finished parts.
- The tolerance classes 4H5H and 4H6H can be used for the manufacture of finished parts (with or without coating).

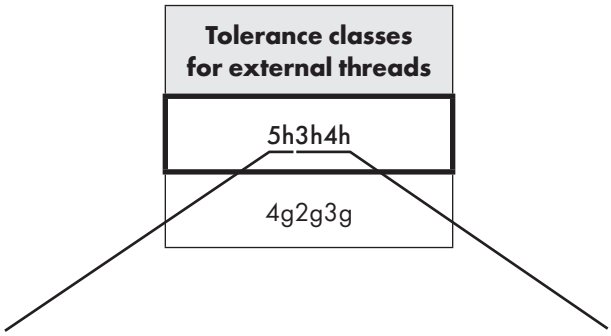
Tolerance class on the internal Ø.
The bore Ø is indicated by the last two characters.

The dimensions of the smooth plug gauges NIHS 06-12:

- 5H (formerly known as "brass")
- 6H (formerly known as "steel")

Go and NoGo are listed on page 27.

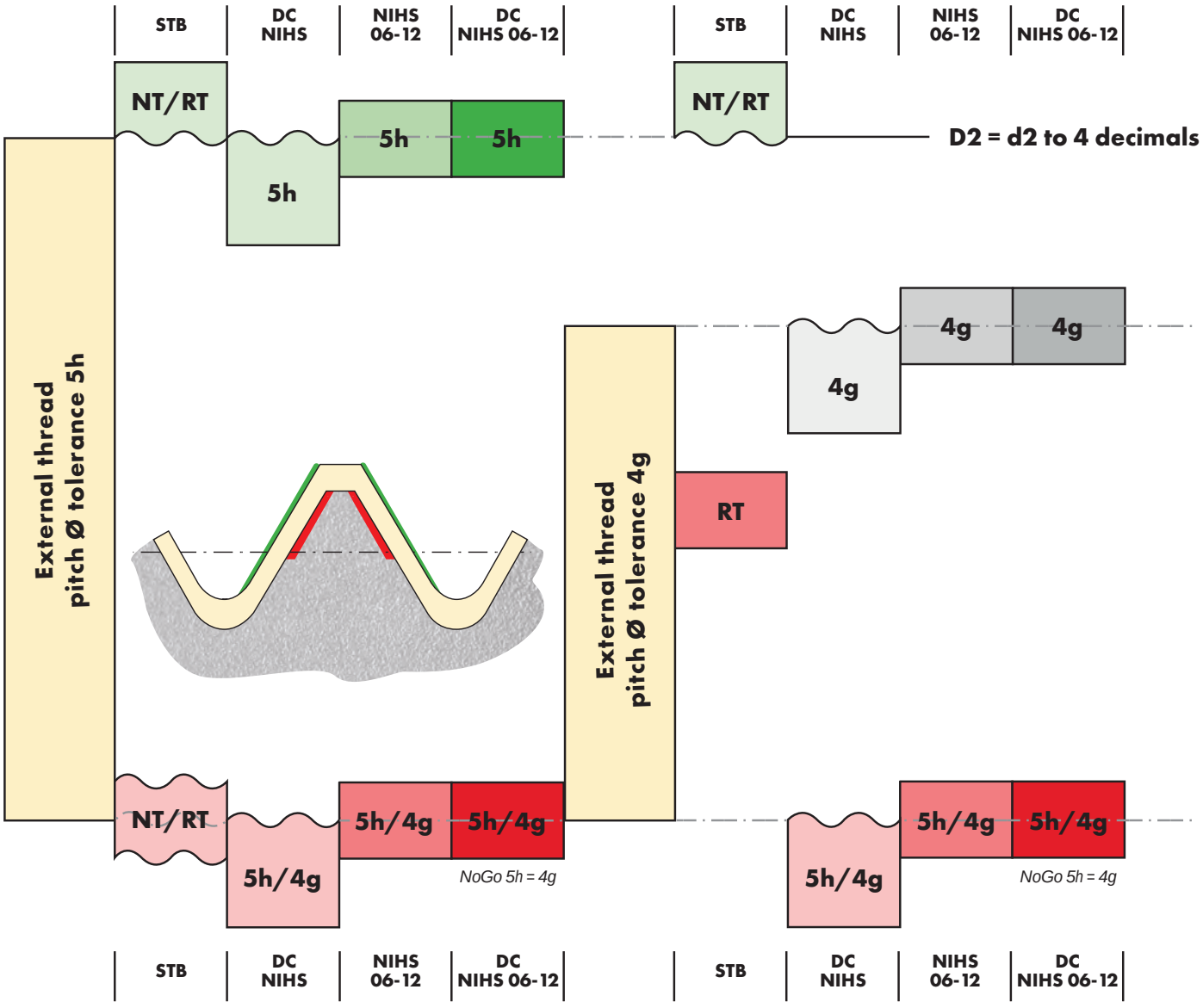
OF THE THREAD GAUGES



Unless explicitly stated otherwise, tolerance 5h applies as standard.

- The tolerance position 4g can be used to produce parts before coating (blanks, raw parts or semi-finished parts). Tolerance class 4g can also be used for finished parts due to its position.
- The tolerance class 5h can be used for the manufacture of finished parts (with or without coating).

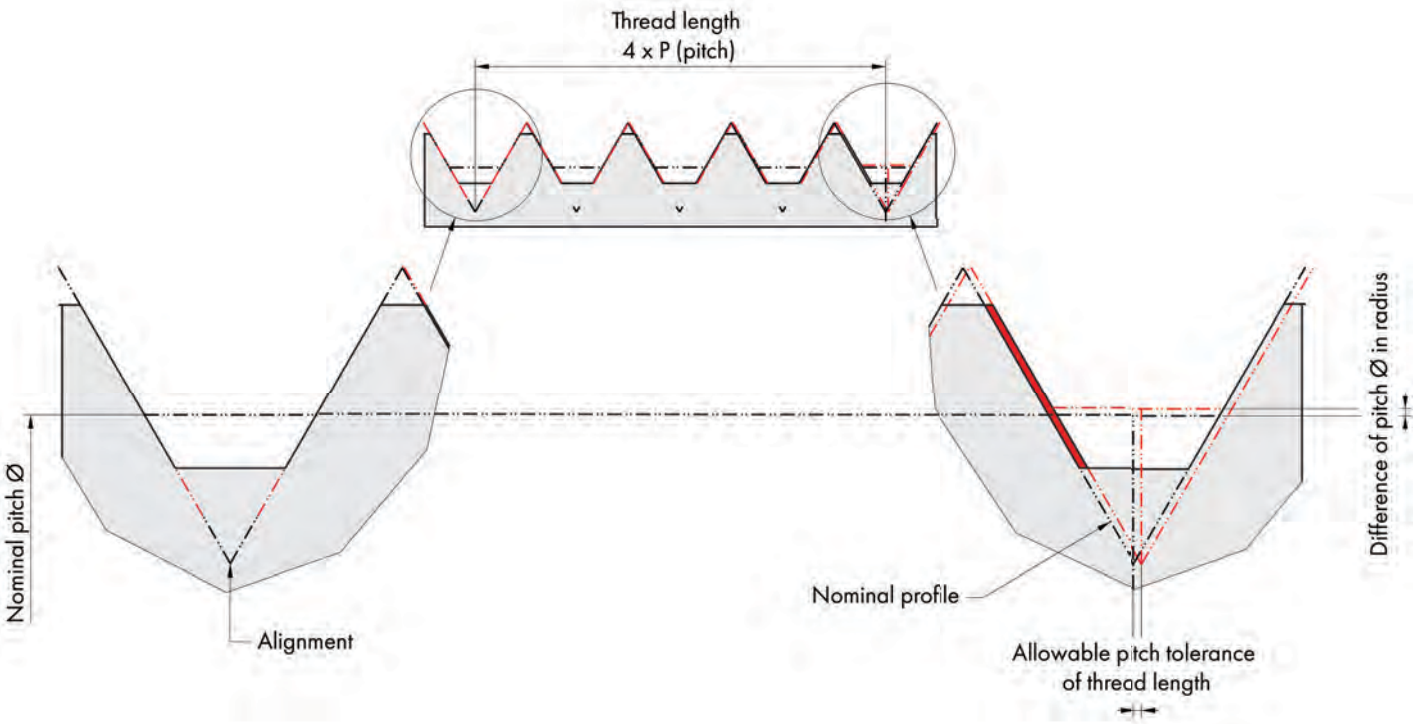
The tolerances of the external (3h) and internal (4h) Ø result from the selected tolerance of the pitch Ø.
They are not indicated on the gauges or on the threading tools.



INTERNAL THREAD, THREAD PLUG GAUGES

1.1 PITCH TOLERANCE OF THREAD PLUG GAUGES

The NIHS 06-12 standard specifies the limits of permissible pitch error for a defined maximum profile offset.

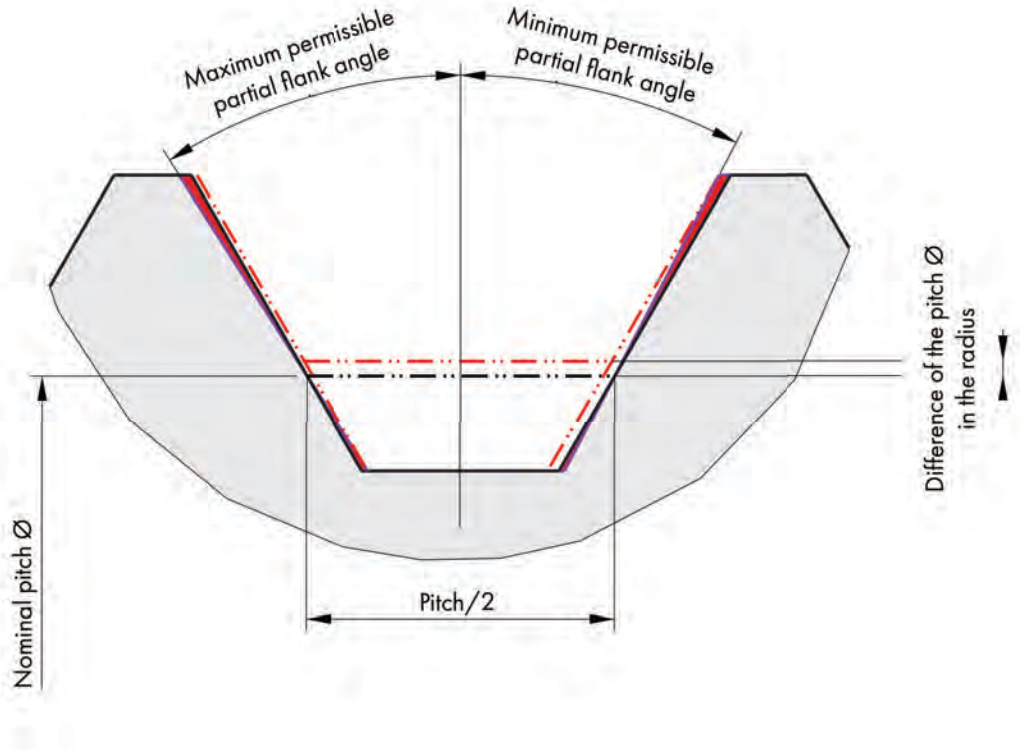


Examples of the influence of the pitch tolerance, expressed in % of the tolerance of the pitch Ø:

Standard	Pitch mm	Permitted pitch tolerance	Example calculated on:	Resulting thread length (l_2) mm	Permitted pitch tolerance on thread length µm	Difference of the resulting pitch Ø µm	Tolerance of the pitch Ø of the good thread plug gauge Go µm	Influence of the pitch tolerance, expressed in % of the tolerance of the pitch Ø of the gauge
STB NT / RT	0.09	1µm/revo.	4 x pitch	0.36	4	6.9	± 2	173%
NIHS 06-12	0.09	0.3µm/l_2	4 x pitch	0.36	0.3	0.5	± 2	13%
STB NT / RT	0.175	1µm/revo.	4 x pitch	0.7	4	6.9	± 2	173%
NIHS 06-12	0.175	0.3µm/l_2	4 x pitch	0.7	0.3	0.5	± 2	13%
STB NT / RT	0.25	1µm/revo.	4 x pitch	1	4	6.9	± 2	173%
NIHS 06-12	0.25	0.3µm/l_2	4 x pitch	1	0.3	0.5	± 2	13%
STB NT / RT	0.3	1µm/revo.	4 x pitch	1.2	4	6.9	± 2	173%
NIHS 06-12	0.3	0.3µm/l_2	4 x pitch	1.2	0.3	0.5	± 2	13%

1.2 TOLERANCE OF PARTIAL FLANK ANGLES OF THE THREAD PLUG GAUGES

It defines the permissible limits of partial flank angle errors to limit any profile errors.



Examples of the influence of the partial flank angle tolerance, expressed in % of the tolerance of the pitch Ø:

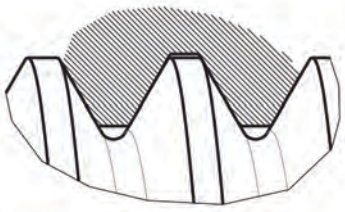
Standard	Pitch mm	Tolerance of the partial flank angle minutes	Difference of the pitch Ø µm	Tolerance of the pitch Ø of the gauge µm	Influence of the partial flank angle tolerance, expressed in % of the tolerance of the pitch Ø of the gauge
STB	0.09	+/- 57.5	3.4	± 2	85%
NIHS 06-12	0.09	+/- 69	4	± 2	100%
DC SWISS NIHS 06-12	0.09	+/- 24	1.4	± 2	35%
STB	0.175	+/- 32.5	3.7	± 2	93%
NIHS 06-12	0.175	+/- 35	4	± 2	100%
DC SWISS NIHS 06-12	0.175	+/- 24	2.7	± 2	68%
STB	0.25	+/- 30	4.8	± 2	120%
NIHS 06-12	0.25	+/- 25	4	± 2	100%
DC SWISS NIHS 06-12	0.25	+/- 18	2.9	± 2	73%
STB	0.3	+/- 20	3.8	± 2	95%
NIHS 06-12	0.3	+/- 21	4	± 2	100%
DC SWISS NIHS 06-12	0.3	+/- 18	3.5	± 2	88%

1.3 THREAD PLUG GAUGES, FAULT ACCUMULATION

Standard	Dimension	Pitch mm	Thread plug gauge	Tolerance	Deviation of the pitch Ø in relation to the standard NIHS 06-12 4H µm	Deviation of the rounding difference of the pitch Ø STB to 1 µm, NIHS to 0.1 µm µm	Difference of pitch Ø due to pitch tolerance over a length of 4 x pitch (P) µm	Difference of the pitch Ø due to the tolerance of the partial flank angle µm	Cumulation of previous deviations and differences µm	Tolerance of the pitch Ø of the gauge µm	Cumulated deviations and differences expressed in % of the tolerance of the pitch Ø of the gauge
STB	S0.35	0.09	Go	NT	2	0.5	6.9	3.4	12.8	± 2	320%
NIHS 06-12	S0.35	0.09	Go	4H	-	-	0.5	4	4.5	± 2	112.5%
DC SWISS NIHS 06-12	S0.35	0.09	Go	4H	-	-	0.5	1.4	1.9	± 2	47.5%
STB	S0.7	0.175	Go	NT	2	-0.3	6.9	3.7	12.3	± 2	307.5%
NIHS 06-12	S0.7	0.175	Go	4H	-	-	0.5	4	4.5	± 2	112.5%
DC SWISS NIHS 06-12	S0.7	0.175	Go	4H	-	-	0.5	2.7	3.2	± 2	80%
STB	S1	0.25	Go	NT	2	0.4	6.9	4.8	14.1	± 2	352.5%
NIHS 06-12	S1	0.25	Go	4H	-	-	0.5	4	4.5	± 2	112.5%
DC SWISS NIHS 06-12	S1	0.25	Go	4H	-	-	0.5	2.9	3.4	± 2	85%
STB	S1.4	0.3	Go	NT	2	-0.1	6.9	3.8	12.6	± 2	315%
NIHS 06-12	S1.4	0.3	Go	4H	-	-	0.5	4	4.5	± 2	112.5%
DC SWISS NIHS 06-12	S1.4	0.3	Go	4H	-	-	0.5	3.5	4	± 2	100%

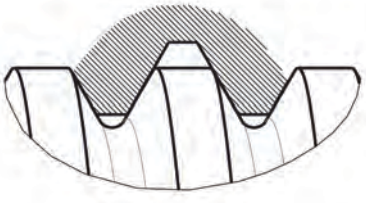
1.4 EXTERNAL Ø OF THE NoGo THREAD PLUG GAUGE

Profile with full flanks (pointed)

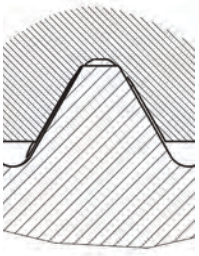


A pointed external Ø of the thread plug gauge can negatively affect the inspection of the nut.

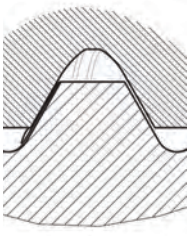
Profile with shortened flanks (stepped)



The taper of the external Ø of the thread plug gauge allows the correct control of the pitch Ø.



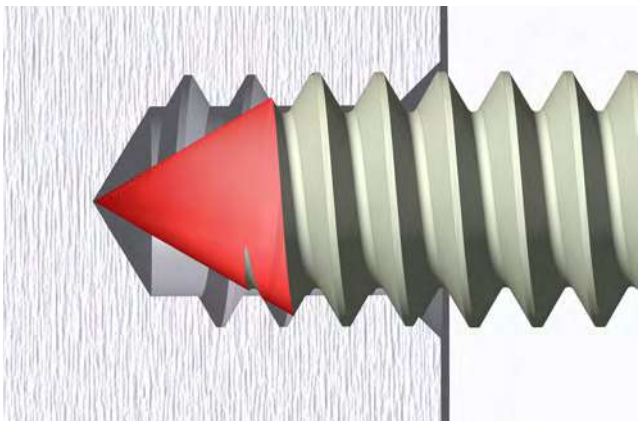
The NoGo thread plug gauge with non-shortened flanks (pointed) can abut on the external Ø of the nut.



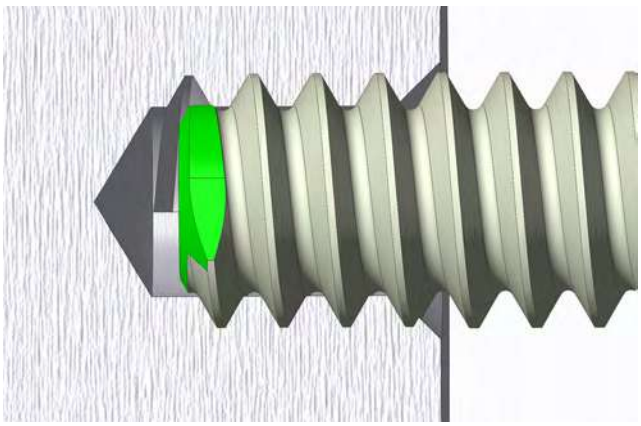
The NoGo plug gauge with shortened flanks allows the pitch Ø to be checked without being influenced by the external Ø of the nut.

1.5 THREAD RUN-IN OF THE THREAD PLUG GAUGE

With point



Removal of the incomplete thread with chamfer

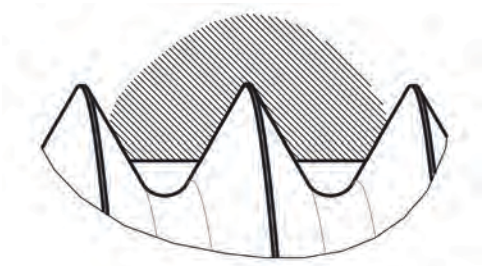


- Controls the depth to the last full thread turn
- Facilitates setting

EXTERNAL THREAD, THREAD RING GAUGES

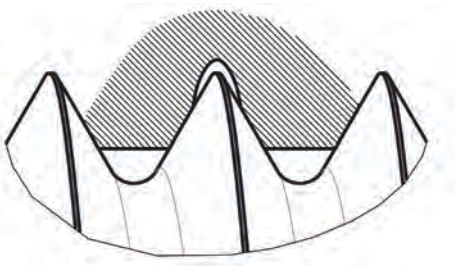
2.1 EXTERNAL Ø OF NoGo THREAD RING GAUGES

Profile with full flanks
(pointed)

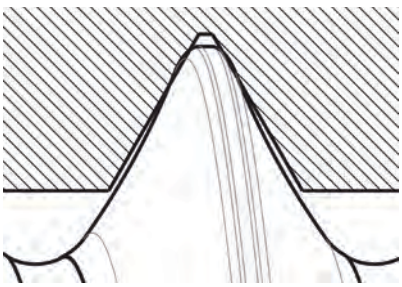


A pointed external Ø of the ring gauge can negatively affect the inspection of the screw.

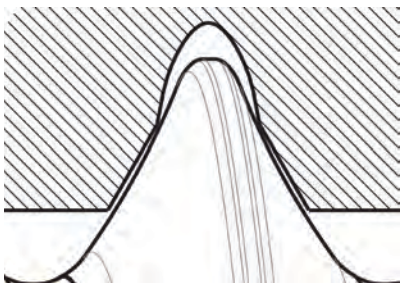
Profile with shortened flanks
(free-punched)



The recess ensures the control of the pitch Ø.



The non-exposed (pointed) NoGo thread ring gauge can protrude on the external Ø of the screw.



The recessed NoGo ring gauge makes it possible to check the pitch Ø without being influenced by the external diameter of the screw.

2.2 THREAD RUN-IN OF THE THREAD RING GAUGES

Without chamfer

- Fragile, incomplete thread

With chamfer

- Prevents deformation or breakage of the 1st incomplete thread
- Facilitates setting

3.1 SMOOTH PLUG GAUGES

Limit values of smooth plug gauges

for inside Ø D_1 of internal threads of tolerance 5H.
Dimensions in millimetres (mm), tolerances in micrometres (µm).

Nominal diameter	Pitch mm	5H Go		5H NoGo	
		Ø of the smooth plug gauge	Tolerance	Ø of the smooth plug gauge	Tolerance
S0.3	0.08	0.2252	±1	0.2402	±1
S0.35	0.09	0.2656	±1	0.2856	±1
S0.4	0.1	0.309	±1	0.33	±1
S0.45	0.1	0.359	±1	0.38	±1
S0.5	0.125	0.385	±1	0.415	±1
S0.55	0.125	0.435	±1	0.465	±1
S0.6	0.15	0.461	±1	0.502	±1
S0.7	0.175	0.537	±1	0.585	±1
S0.8	0.2	0.613	±1	0.665	±1
S0.9	0.225	0.694	±2	0.745	±2
S1	0.25	0.77	±2	0.825	±2
S1.1	0.25	0.87	±2	0.925	±2
S1.2	0.25	0.97	±2	1.025	±2
S1.3	0.3	1.022	±2	1.085	±2
S1.4	0.3	1.122	±2	1.185	±2

Limit values of the smooth gauges

for inside Ø D_1 of internal threads of tolerance 6H.
Dimensions in millimetres (mm), tolerances in micrometres (µm)

Nominal diameter	Pitch mm	6H Go		6H NoGo	
		Ø of the smooth plug gauge	Tolerance	Ø of the smooth plug gauge	Tolerance
S0.4	0.1	0.309	±1	0.342	±1
S0.45	0.1	0.359	±1	0.392	±1
S0.5	0.125	0.385	±1	0.435	±1
S0.55	0.125	0.435	±1	0.485	±1
S0.6	0.15	0.466	±2	0.522	±2
S0.7	0.175	0.542	±2	0.605	±2
S0.8	0.2	0.618	±2	0.685	±2
S0.9	0.225	0.694	±2	0.765	±2
S1	0.25	0.77	±2	0.845	±2
S1.1	0.25	0.87	±2	0.945	±2
S1.2	0.25	0.97	±2	1.045	±2
S1.3	0.3	1.022	±2	1.105	±2
S1.4	0.3	1.122	±2	1.205	±2

CALIBRATION THREAD GAUGES

4.1 DEFINITION

A calibration thread plug gauge allows the characterisation of the metrological performance of the various measuring devices and measuring methods.

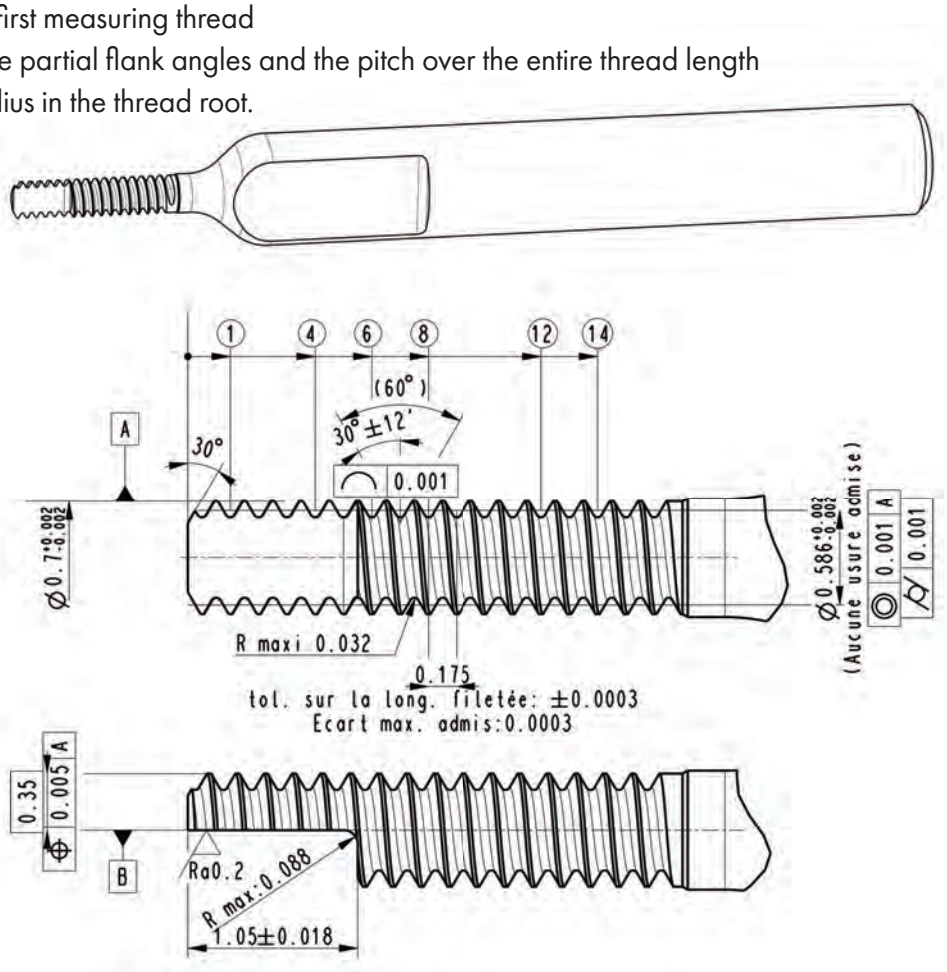
4.2 FIELD OF APPLICATION

The calibration thread plug gauges S NIHS are designed for the calibration of optical and tactile measuring instruments, for external threads with nominal Ø from 0.3 mm to 1.4 mm.

4.3 CONCEPT OF THE CALIBRATION THREAD GAUGES

NIHS 06-11 calibration thread gauges are defined according to a standardised geometric design.
The manufacturer must ensure the following requirements:

- the cylindricity of the pitch Ø
- the position of the cut out part length and the positioning surface
- the parallelism between the positioning surface and the cut part length
- the tolerance of the form and partial flank angle
- the position of the first measuring thread
- the uniformity of the partial flank angles and the pitch over the entire thread length
- the permissible radius in the thread root.



Our calibration thread gauges are supplied with a SCS measurement certificate for pitch Ø, partial flank angle and pitch according to NIHS 06-11.

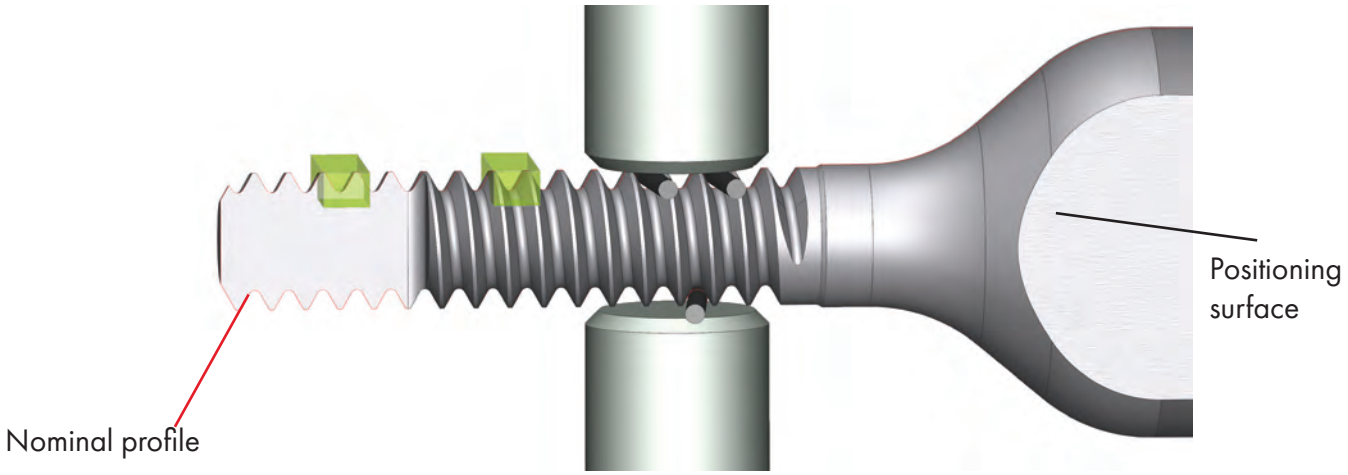
4.4 FUNCTIONS OF THE CALIBRATION THREAD GAUGES

- Calibration of the pitch Ø
- Calibration of the flank angles
- Calibration of the pitch

4.5 METHODS OF USING THE CALIBRATION THREAD GAUGES

The cut-off part length allows the thread to be measured without profile distortion (without shadowing)

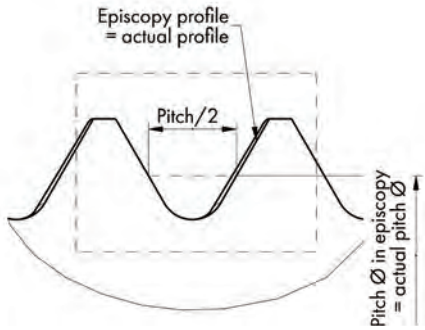
The full part allows the measurement of the thread in real condition (distortion must be considered)



NON-CONTACT (OPTICAL) SOLUTION

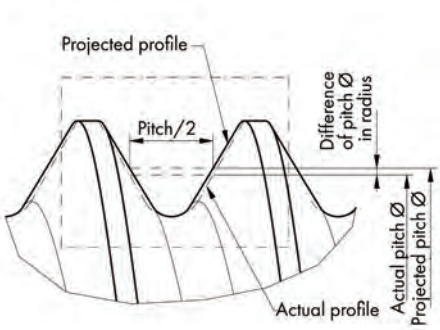
Definition of shadow distortion:
Distortion = deviation of the projected profile from the actual profile in the axial cutting plane of the calibration thread gauge

Optical measurement on the cut-off partial length of the calibration plug gauge in episcopy (reflection) or in diascopy (projection).



- In episcopy, the entire profile can be viewed without distortion.
- In diascopy (projection), the shadow cast is only on the right flank.

Optical measurement on the full partial length of the calibration thread gauge in the diascopy (projection).

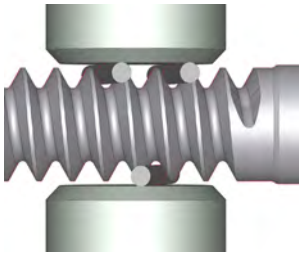


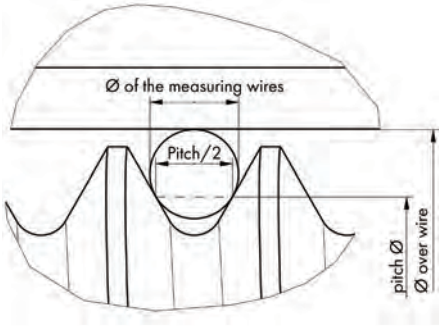
- The shadow cast is on both sides.

References:
- NIHS 06-11 B.2.1 Deviation of the measurement of the pitch Ø.
- NIHS 06-11 B.2.2 Deviation of flank angle measurement.

TACTILE SOLUTION

Tactile measurement via wire on the full partial length of the calibration thread plug gauge





- The measuring force inclines the measuring wires by the pitch angle.

References:
- EURAMET cg-10: defines the determination of the pitch Ø depending on the measuring wires and the applied measuring force.
- Specification of the measuring wires according to standard NIHS 06-13.

5.1 NORMATIVE REFERENCES

NIHS 06-10 Miniature Thread S NIHS
— Basic profile and tolerances
specifies internal and external threads.

NIHS 06-11 Miniature Thread S NIHS
— Calibration thread plug gauges
specifies the calibration thread plug gauges for the calibration of measuring equipment.

NIHS 06-12 Miniature Thread S NIHS
— Thread gauges
specification of thread plug gauges and plain gauges, thread ring gauges and plug check gauges.

NIHS 06-13 Miniature Thread S NIHS
— Gauge wires
specification of gauge wires for pitch Ø control.

STB (U758-002D-F)
— Thread gauges for Miniature Thread NIHS S
Swatch Group specification for thread plug gauges and plain gauges, and thread ring gauges.

EURAMET cg-10
defines the determination of pitch Ø according to the gauging wires and the applied gauging force.

Ni614, standard DC SWISS SA
— Thread gauges, flank angle
specification of the tolerances of the partial flank angle.

AVAILABLE SETS

THREAD PLUG GAUGES & RING GAUGES DN

SINGLE SET

THREAD RING GAUGES DZ

SINGLE SET

PLUG GAUGES DN / RING GAUGES DN

SET OF 10 OR 20 ITEMS

You can select the exact number of
Go / NoGo thread gauges for each set.

Contact us for any other set compositions.

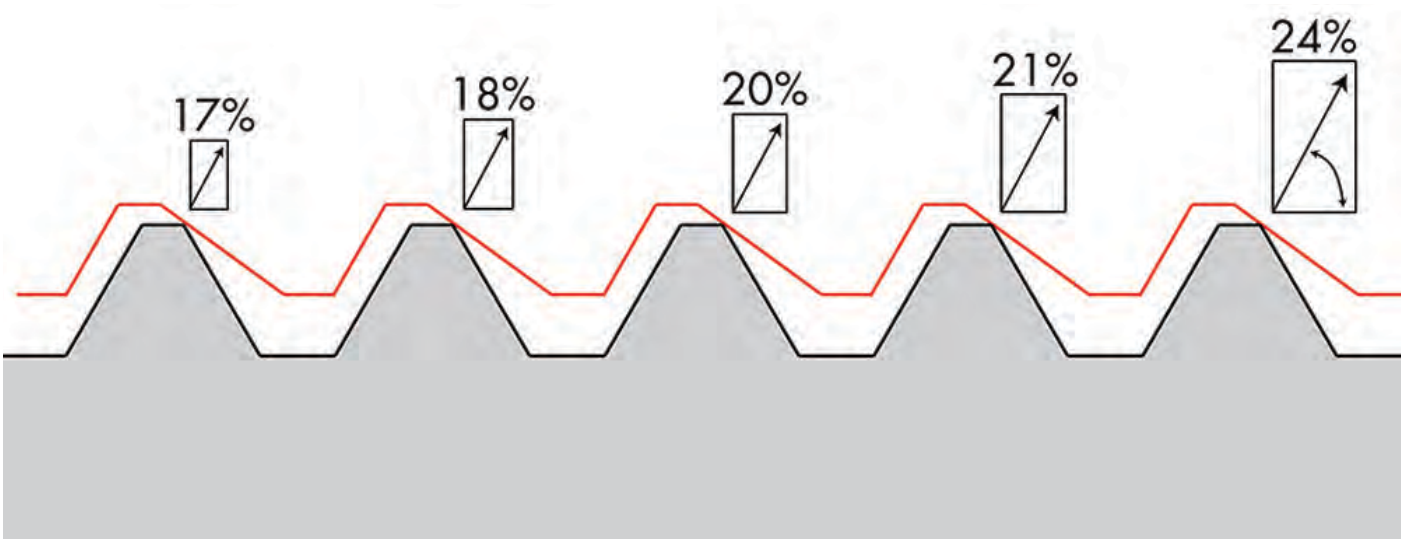
dcswiss.com / info@dcswiss.ch / +41 32 491 63 63

MICRO SAFELOCK

The Micro-Safelock brand, registered and protected by DC SWISS, identifies the tools benefiting from the Safelock system guaranteeing the threaded self-locking assembly, developed and patented by DC SWISS.

For diameters of less than 1.5 mm, the requirements for the interior and exterior threading tolerance are such that conventional method for production and measurement do not permit the industrial production of components for conventional self-locking asymmetrical screw assemblies.

This standard self-locking asymmetrical threaded micro-assembly for diameters ranging from 0.30 to 1.40 mm, which adheres to the tolerances inherent in micro-screw threads, has been designed and patented under the name of Micro-Safelock. It offers exceptional performance in terms of resistance to shocks and vibrations, based on the technology used for larger-scale assemblies and fully integrating the 30° gradient into the interior thread (nut), making it easier to assemble the screw.



When tightening torque is applied, the tensile force exerted on the screw forces it to auto-centre, and the profile points of the screw come into contact with the edges of the asymmetrical profile of the interior screw thread (gradient), thus leading to tangential contact and a regular distribution of load across all the turns of the thread.

Reducing the load on the first few turns of the thread and directing the stress towards compressing the screw significantly reduces the fatigue experienced by the screw/nut assembly, thereby making it possible to assemble and disassemble it numerous times without changing its characteristics.

To correspond to the dimensional requirements, the core of the screw has been amply reinforced compared with a 60° NIHS or M type thread of the same dimension.

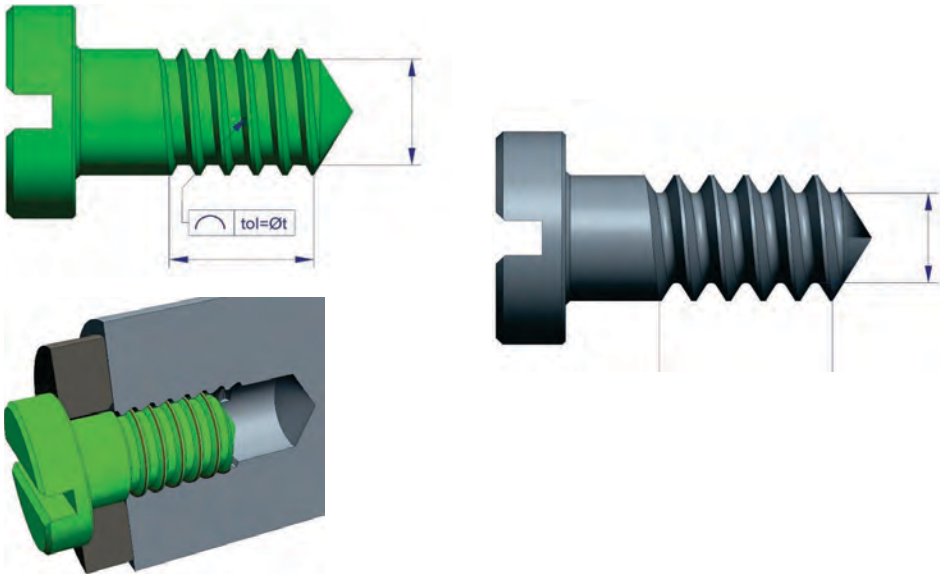
The length of the pitch has been reduced in comparison with the NIHS standard in order to increase the area of contact between the two fixing elements, with the usable length remaining the same. This obviously offers considerable advantages, particularly when working with soft materials and small-headed screws with a reduced thread length.

THE ADVANTAGES OF THE SELF-LOCKING

- Distributes the tensile force along the entire length of the screw thread
- Nominal blocking torque up to 25% less than that of a conventional assembly
- Completely mechanical, with no chemical additives

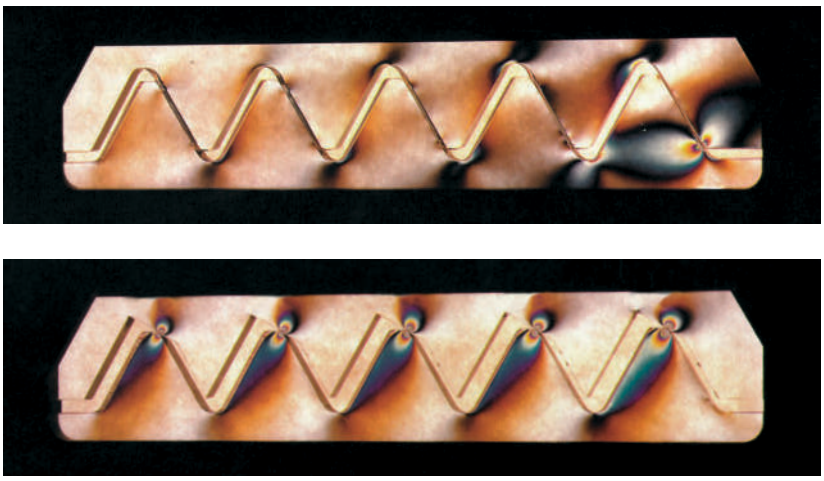
THE ADVANTAGES OF THE SCREW

- Screw thread with tolerances tailored to meet requirements, enabling uninterrupted contact between screw and nut
- Fine pitch, increasing the surface in contact with the nut for the same length of thread
- Improved tensile strength thanks to an interior diameter of the profile that is 19% greater (more than 40% in section)
- Multiple assembly / disassembly with no change in mechanical properties

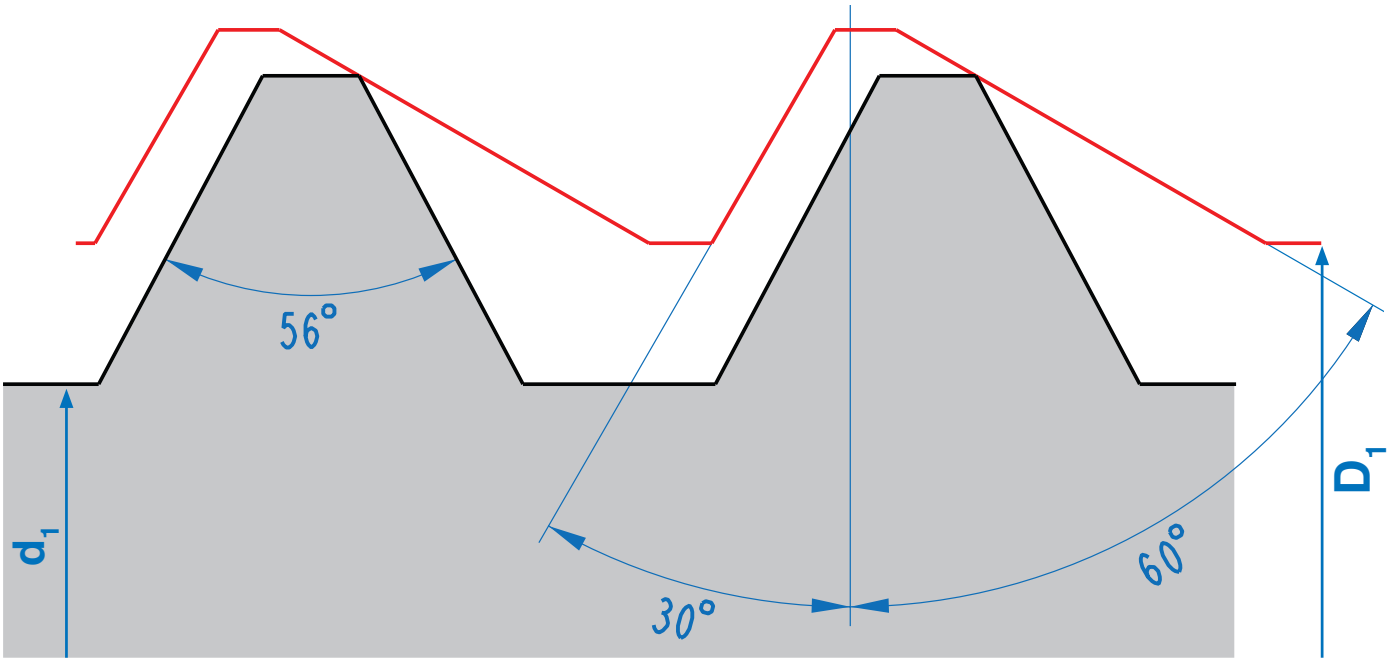


The numerous impact resistance tests that have been carried out, clearly show that the threaded assemblies are totally reliable and now offer a credible response to problems affecting screw resistance.

The tightening torques applied to specimen screws are 25% less than the values recommended by manufacturers of chemical "threadlocking" coatings.



SAFELOCK DIMENSIONS AND STANDARDS



Dimension	Pitch mm	D_1 mini mm	D_1 maxi mm	Angles of sides of nut	Angles of sides of screw	d_1
SL 0.3	0.06	0.264	0.278	30°/60°	56°	0.247
SL 0.35	0.06	0.314	0.328	30°/60°	56°	0.297
SL 0.4	0.08	0.356	0.372	30°/60°	56°	0.331
SL 0.5	0.1	0.448	0.466	30°/60°	56°	0.416
SL 0.6	0.125	0.538	0.559	30°/60°	56°	0.496
SL 0.7	0.15	0.628	0.651	30°/60°	56°	0.576
SL 0.8	0.15	0.728	0.751	30°/60°	56°	0.676
SL 0.9	0.175	0.818	0.844	30°/60°	56°	0.756
SL 1.0	0.2	0.908	0.936	30°/60°	56°	0.836
SL 1.2	0.2	1.108	1.136	30°/60°	56°	1.036
SL 1.4	0.25	1.288	1.321	30°/60°	56°	1.197

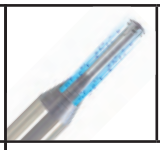
THREADING SOLUTIONS

AVAILABILITY OF THE ARTICLES

- ID Stock item
- ID Available at short notice

REGISTER

Machine taps nano



Thread whirl cutters

Machine thread formers nano

Thread plug gauges nano

All nano thread plug gauges are SCS certified, and the paid certificate is available on request.

Thread ring gauges nano

All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges. The paid certificate is available on request.

Thread plug check gauges nano

SCS certificate included.

Master plug gauges WEAR nano

SCS certificate included.

Tapping chucks SRT

Solid carbide spotting drills, Solid carbide twist drills

Calibration thread plug gauges nano

SCS certificate included.

Technical questionnaire
Delivery and payment conditions

Further information are available on
www.dcswiss.com

PICTOGRAPHS TAPS AND THREAD FORMERS NANO

For material groups as per DC application chart

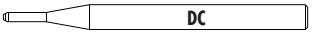
12 Structural, cementation steels

1.0037	St37-2 (S235JR)
1.0050	St50-2 (E295)
1.0060	St60-2 (E335)
1.5919	15CrNi6
1.7131	16MnCr5

22 Austenitic stainless steels

1.4301	X5CrNi18-10
1.4406	X2CrNiMoN17-12-2
1.4435	X2CrNiMo18-14-3
1.4541	X6CrNiTi18-10
1.4571	X6CrNiMoTi17-12-2

Reinforced shank as per DIN 371



Reinforced shank as per DC standards

PM — HSSE-PM

VHM CAR — Solid carbide

Number of flutes (Z)

L20 — 20° left-hand spiral flutes

R25 — 25° right-hand spiral flutes

Thread former

< 2 x D — Through hole < 2 x D, long chipping materials

< 2 x D — Blind hole < 2 x D, long chipping materials

< 2.5 x D — Through / blind hole < 2.5 x D, short chipping materials

< 3 x D — Through / blind hole < 3 x D, short chipping materials

C 2 x P — 2 - 3 chamfered threads, form C

D 4 x P — 3.5 - 5 chamfered threads, form D

E 1.5 x P — 1.5 - 2 chamfered threads, form E

4H — Tolerance class 4H

ISO 2 6H — Tolerance class ISO 2 6H

VS — DC "VS" wear-protective coating for general use

PICTOGRAPHS THREAD GAUGES NANO

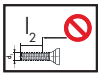
For micromechanics and watchmaking

Go

NoGo

NIHS 4H — Tolerance class NIHS 4H, Go

NIHS 5h/4g — Tolerance class NIHS 5h/4g, NoGo



Max. measuring length l_2 must not be exceeded

PHYN. KL — Phynox KL

LH — **LH: Left-hand thread**
All gauges can be supplied with a left-hand thread upon request

PICTOGRAPHS SOLID CARBIDE THREAD WHIRL CUTTERS, SPOTTING DRILLS AND TWIST DRILLS

Solid carbide

DC "VS" wear-protective coating for general use

DC "VX" wear-protective coating for stainless steels and nickel alloys

Norm of Swiss Watch Industry

Shank tolerance h5

Shank tolerance h6

Shape accuracy

HSC-Machining


GW1000 profile


GW2000 profile


GW3000 profile


GWi3000 profile


GWi5000 profile


Number of teeth for programming (GWi5000)


For burr-free threads (GWi5000)

0° helix angle (GWi5000)

10° right-hand helix angle


Cooling channel GWi Ø 0.8 - ≤ 6.35 mm

Thread length 2 x D_1

Thread length 2.5 x D_1

Thread length 3 x D_1

Thread length 4 x D_1


Internal thread (GW - GWi)


Core-hole diameter

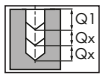

Number of flutes (Z)

Sense of rotation of tool "left"

Sense of rotation of tool "right"

Chamfer 90°

Drilling depth 8 x d_1



Drilling with pecking

130° point angle


Internal coolant, with 2 twisted coolant channels


Internal coolant


Internal coolant

General dimensions as per DC standards

Machine taps nano

Example

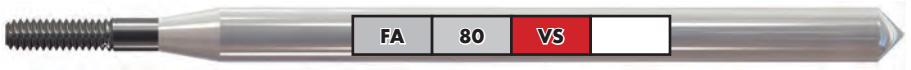
Normal materials	TAN			
Tough materials	TAZ			
Brass	CMS			
< 27° left-hand spiral flutes		40		
< 27° right-hand spiral flutes		50		
VS wear-protective coating, general			VS	
Special execution				SP

General dimensions as per DC standards

For use as per DC application chart for DC taps nano

Machine thread formers nano

Example



Thread formers nano in PM	FA			
Thread formers nano in solid carbide	CFA			
Lead form E (1.5 - 2 chamfered threads)		80		
Lead form C (2 - 3 chamfered threads)		83		
VS wear-protective coating, general			VS	
Special execution				SP

General dimensions as per DC standards

For use as per DC application chart for DC thread formers nano

Solid carbide thread whirl cutters

Example

Standard execution	GW					
For hardened steels (55 - ≤ 63 HRC)	GWH					
With cooling channel	GWi					
Single tooth		11				
Single profile, multi toothed		20				
Double pitch with multi flutes		30				
Multi fluted with full profile, left-hand cutting		50				
Multi fluted with full profile, right-hand cutting		60				
External lubrication			1			
Internal lubrication			6			
Thread length 2 x D_1				5		
Thread length 2.5 x D_1				6		
Thread length 3 x D_1				7		
Thread length 4 x D_1				9		
VS wear-protective coating, general					VS	
VX coating for stainless steels and nickel alloys					VX	
VH coating for hardened steels (≤ 63 HRC)					VH	
Special execution						SP

APPLICATION GROUPS

Examples for application groups

Reference: DIN

11 Free-cutting steels

1.0711	9S20
1.0715	9SMn28
1.0718	9SMnPb28
1.0726	35S20
1.0737	9SMnPb36

12 Structural, cementation steels

1.0037	St37-2 (S235JR)
1.0050	St50-2 (E295)
1.0060	St60-2 (E335)
1.5919	15CrNi6
1.7131	16MnCr5

13 Carbon steels

1.0503	C45
1.0535	C55
1.0601	C60
1.1545	C105W1
1.2067	102Cr6 (100Cr6)

14 Alloy steels < 850 N/mm2

1.2363	X100CrMoV5-1
1.3551	80MoCrV42-16
1.7218	25CrMo4
1.7220	34CrMo4
1.7225	42CrMo4

15 Alloy steels hard./temp. > 850 - < 1150 N/mm2

1.3553	X82WMoCrV6-5-4
1.6580	30CrNiMo8
1.7220	34CrMo4
1.7225	42CrMo4
1.8507	34CrAlMo5

16 High tensile alloy steels ≤ 44 HRC

	EN-GJS-1200-2
1.6582	34CrNiMo6v
1.7225	42CrMo4v
1.7228	50CrMo4v
1.8515	31CrMo12v

17 Alloy steels tempered > 44 - ≤ 54 HRC

> 44 - ≤ 54 HRC

18 Alloy steels hardened > 54 - ≤ 63 HRC

> 54 - ≤ 63 HRC

21 Free machining stainless steels

1.4005	X12CrS13
1.4104	X14CrMoS17
1.4305	X10CrNiS18-9

22 Austenitic stainless steels

1.4301	X5CrNi18-10
1.4406	X2CrNiMoN17-12-2
1.4435	X2CrNiMo18-14-3
1.4541	X6CrNiTi18-10
1.4571	X6CrNiMoTi17-12-2

23 Ferritic and martensitic < 850 N/mm2

1.4112	X90CrMoV18
1.4540	X4CrNiCuNb16-4
1.4582	X4CrNiMoNb25-7
1.4762	X10CrAl24
1.4922	X20CrMov11-1

24 Ferritic and martensitic > 850 - < 1150 N/mm2

1.4057	17CrNi16-2
1.4125	X105CrMo17
1.4542	X5CrNiCuNb16-4
1.4548	X5CrNiCuNb17-4-4
1.4748	X85CrMoV18-2

31 Cast iron

0.6015	GJL-150
0.6020	GJL-200
0.6025	GJL-250
0.6030	GJL-300

32 Spheroidal graphite + malleable cast iron

0.7040	GJS 400-15
0.7043	GJS 400-18
0.7050	GJS 500-7
0.7060	GJS 600-3
0.7080	GJS 800-2

41 Pure titanium

3.7024	Grad1
3.7034	Grad2
3.7055	Grad3
3.7065	Grad4

42 Titanium alloys

3.7124	TiCu2.5 Ti6Al7Nb
3.7164	TiAl6V4 (Grad5)
3.7174	TiAl6V6Sn2

51 Nickel alloys 1 ≤ 850 N/mm2

1.3912	Ni36 (Invar)
2.4360	NiCu30Fe (Monel 400)
2.4816	NiCr15Fe (Inconel 600)
1.4876	X10NiCrAlTi32-20

52 Nickel alloys 2 > 850 - ≤ 1150 N/mm2

2.4375	NiCu30Al (MonelK500)
2.4631	NiCr20TiAl (Nimonic 80)
2.4668	NiCr19NbMo (Inconel718)

53 Nickel alloys 3 > 1150 - ≤ 1600 N/mm2

2.4631	NiCr20TiAl (Nimonic80)
2.4668	NiCr19NbMo (Inconel718)

61 Pure copper (electrolytic copper)

2.0060	E-Cu57 (E-Cu)

62 Short chip brass, phosphor bronze, gun metal

2.0401	CuZn39Pb3 (Ms58)
2.0402	CuZn40Pb2 (Ms58)
2.1030	CuSn8 (Bz)
2.1096	G-CuSn5ZnPb

63 Long chip brass

2.0240	CuZn15 (Ms85)
2.0265	CuZn30 (Ms70)
2.0321	CuZn37 (Ms63)

64 Lead free brass

CuZn21Si3P (ECOBRASS®)
CuZn35
CuZn42

71 Al unalloyed

3.0205	Al99
3.0255	Al99.5

72 Al alloyed Si < 1.5 %

3.1255	AlCuSiMn
3.1355	AlCuMg2
3.2315	AlMgSi1
3.3206	AlMgSi0.5
3.4345	AlZnMgCu0.5

73 Al alloyed Si > 1.5 % - < 10 %

3.2161	G-AlSi8Cu3
3.2162	GD-AlSi8Cu3
3.2341	G-AlSi5Mg
3.2371	G-AlSi7Mg

74 Al alloyed Si > 10 %, Mg-alloys

3.2381	G-AlSi10Mg
3.2382	GD-AlSi10Mg
3.2581	G-AlSi12
3.2583	G-AlSi12 (Cu)

81 Thermoplastics

Delrin (POM)
Teflon
Nylon

82 Duroplastics

Bakelit
Novopan

83 Glass fibre reinforced plastics

Glass fibre reinforced, Thermo and Duroplastics

91 Yellow gold

2N18
Au585AgCu205
3N18
Au917AgCu44

92 Red gold

4N18
5N18
Au585CuAg325
Au750AgCu
Au917Cu83

93 White gold

Au750PdCu125
Au750PdCu150
Au585PdCu150
Au925Pd75

94 Silver

Ag999
Ag800Cu
Ag925Cu

APPLICATION GROUPS

Examples for application groups

Reference: AISI/ASTM/UNS

11 Free-cutting steels

1.0711	1212
1.0715	1213
1.0718	12L13
1.0726	1140
1.0737	12L14

12 Structural, cementation steels

1.0037	1015
1.0050	A570 Gr.50
1.0060	A572 Gr.55
1.5919	4617
1.7131	5115

13 Carbon steels

1.0503	1045
1.0535	1055
1.0601	1060
1.1545	W110
1.2067	L 3

14 Alloy steels < 850 N/mm2

1.2363	A2
1.3551	M50
1.7218	4130
1.7220	4135
1.7225	4140

15 Alloy steels hard./temp. > 850 - < 1150 N/mm2

1.3553	-
1.6580	4340
1.7220	4135
1.7225	4140
1.8507	A355CLD (K23510)

16 High tensile alloy steels ≤ 44 HRC

	EN-GJS-1200-2
1.6582	4340
1.7225	4140
1.7228	4150
1.8515	-

17 Alloy steels tempered > 44 - ≤ 54 HRC

> 44 - ≤ 54 HRC

18 Alloy steels hardened > 54 - ≤ 63 HRC

> 54 - ≤ 63 HRC

21 Free machining stainless steels

1.4005	416
1.4104	430F
1.4305	303

22 Austenitic stainless steels

1.4301	304
1.4406	316LN
1.4435	316L
1.4541	321
1.4571	316Ti

23 Ferritic and martensitic < 850 N/mm2

1.4112	440B
1.4540	XM12
1.4582	-
1.4762	446
1.4821	4922

24 Ferritic and martensitic > 850 - < 1150 N/mm2

1.4057	431
1.4125	440C
1.4542	630 (17-4PH)
1.4748	-

31 Cast iron

0.6015	A48-25B
0.6020	A48-30B
0.6025	A48-35B
0.6030	A48-45B

32 Spheroidal graphite + malleable cast iron

0.7040	65-45-12
0.7043	60-40-18
0.7050	80-55-06
0.7060	70-60-03
0.7080	120-90-02

41 Pure titanium

3.7024	Gr.1
3.7034	Gr.2
3.7055	Gr.3
3.7065	Gr.4

42 Titanium alloys

3.7124	Alloy 230
	F-1295
3.7164	Gr.5
3.7174	-

51 Nickel alloys 1 ≤ 850 N/mm2

1.3912	K93600
2.4360	N04400
2.4816	N06600
1.4876	N08800

52 Nickel alloys 2 > 850 - ≤ 1150 N/mm2

2.4375	N05500 (B865)
2.4631	N07080 (B637)
2.4668	N07718 (B637)

53 Nickel alloys 3 > 1150 - ≤ 1600 N/mm2

2.4631	N07080 (B637)
2.4668	N07718 (B637)

61 Pure copper (electrolytic copper)

2.0060	C11000

62 Short chip brass, phosphor bronze, gun metal

2.0401	C38500
2.0402	C37800
2.1030	C52100
2.1096	-

63 Long chip brass

2.0240	C23000
2.0265	C26000
2.0321	C27200

64 Lead free brass

CuZn21Si3P
(ECOBRASS®)
CuZn35
CuZn42

71 Al unalloyed

3.0205	1200
3.0255	1050A

72 Al alloyed Si < 1.5 %

3.1255	2014
3.1355	2024
3.2315	6082
3.3206	6060
3.4345	7022

73 Al alloyed Si > 1.5 % - < 10 %

3.2161	327
3.2162	-
3.2341	-
3.2371	356

74 Al alloyed Si > 10 %, Mg-alloys

3.2381	A360
3.2382	-
3.2581	A413
3.2583	413.1

81 Thermoplastics

Delrin (POM)
Teflon
Nylon

82 Duroplastics

Bakelit
Novopan

83 Glass fibre reinforced plastics

Glass fibre reinforced,
Thermo and Duroplastics

COATINGS AVAILABLE ON NANO TOOLS

VS

- DC "VS" wear-protective coating for general use
- To prevent cold welding

VX

- Improved wear resistance and longer tool life in stainless steels and nickel alloys thanks to the DC "VX"-coating
- To prevent cold welding

SPECIFICATIONS THREADING TAPS AND FORMING TAPS

TAN

TAZ

FA

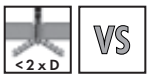
- Top quality HSSE-PM raw material
- Accuracy and repeatability of the tool by manufacturing in a single clamping operation
- Cleaning, brushing or polishing of 100 % of the tools
- Optimal coating adapted to each geometry

TAN40

- For through holes < 2 x D

Application

TAN40VS



- For easy-to-machine materials, steels, brass, aluminium, yellow gold, silver
- Versatile "VS" wear-protective coating for long tool life in series production
- Can also be used in red and white gold

TAN50

- For blind holes < 2 x D

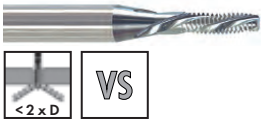
Application

TAN50VS

- For easy-to-machine materials, steels, brass, aluminium, yellow gold, silver
- Versatile "VS" wear-protective coating for long tool life in series production
- Can also be used in red and white gold

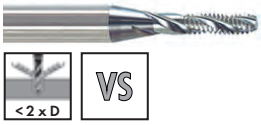
SPECIFICATIONS THREADING TAPS AND FORMING TAPS

TAZ40VS



- For through holes < 2 x D
- With a long chamfer adapted to the pitch, for a better penetration into the material

TAZ50VS

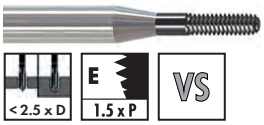


- For blind holes < 2 x D

Application

- For tough materials such as nickel alloys, titanium alloys, alloyed precious materials
- Specific "VS" coating of the latest generation adapted to the geometry of the tool

FA80VS



- For through and blind holes < 2.5 x D
- With extra-short chamfer 1.5 x P (for threads close to the bottom of the core hole)

FA83VS

- For through and blind holes < 2.5 x D
- With short chamfer 2.5 x P

Application

- For any type of material with an elongation > 5 %
- Polygon made up of 4 lobes from Ø 0.5 mm
- Improved thread tensile strength
- Versatile "VS" wear-protective coating for long tool life in series production

SPECIFICATIONS THREADING TAPS AND FORMING TAPS

CMS

CFA

VHM
CAR

- Hard Metal grade suitable for its hardness and torsional strength
- Precision and repeatability of the tool by manufacturing in a single clamping operation
- Unsurpassed surface quality

CMS50

- For through and blind holes < 3 x D
- With a revolutionary chamfer geometry for optimal material penetration

CMS50VS

Application

- For brittle materials like short chip brass, grey cast iron, Cube2, aluminium alloy with Si > 5 %
- Specific "VS" coating of the latest generation adapted to the geometry

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CFA80VS

- For through and blind holes < 2.5 x D
- With extra-short chamfer 1.5 x P (for threads close to the bottom of the core hole)

CFA83VS

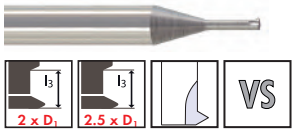
- For through and blind holes < 2.5 x D
- With short chamfer 2.5 x P

Application

- For any type of non-ferrous material with an elongation > 3 %
- For materials such as: aluminium and copper alloys, yellow and red gold, silver, etc
- Versatile "VS" wear-protective coating for long tool life in series production

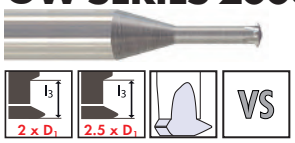
SPECIFICATIONS THREAD WHIRL CUTTERS

GW SERIES 1000



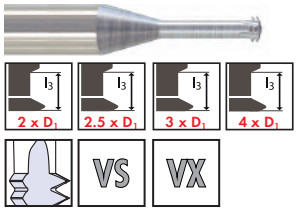
- Universal application
- High process security
- Suitable for the smallest dimensions, from Ø 0.3 mm
- More space for chip evacuation
- For threading depths up to 2.5 x D_1

GW SERIES 2000



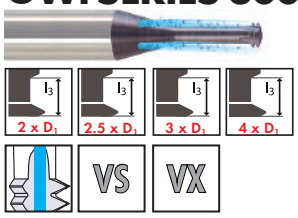
- Feed rate multiplied by number of teeth
- Less wear, longer tool life
- The number of teeth varies, depending on the size
- For threading depths up to 2.5 x D_1

GW SERIES 3000



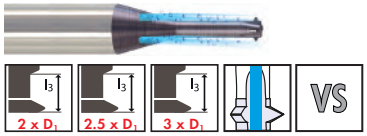
- Secure process, reduction in NC-corrections
- For threading depths up to 4 x D_1

GWi SERIES 3000



- Thanks to an optimal, specific coolant supply:
  - improved chip evacuation
  - twice the tool life
- For threading depths up to 4 x D_1

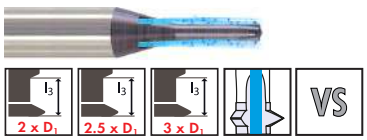
GWi SERIES 5000



Left-hand cutting

- Its specific geometry allows the final milling of the internal diameter and also the deburring of the realised profile
- Geometrically perfect thread thanks to special cutting division
- For absolutely burr-free threads, even in difficult-to-machine materials, while maintaining dimensional accuracy (tolerance)
- High surface quality thanks to specific cutting-edge conditioning
- Improved chip evacuation and long tool life thanks to optimum coolant supply
- Secure process, reduction in NC-corrections
- LH rotation - left-hand cutting for less pressure on the cutting edges
- For threading depths up to 3 x D_1

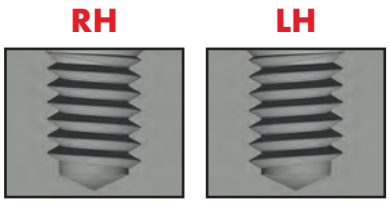
GWi SERIES 6000



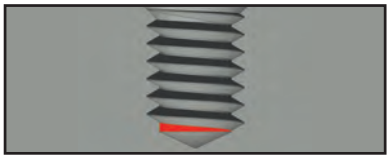
Right-hand cutting on request

SPECIFIC APPLICATION CASES

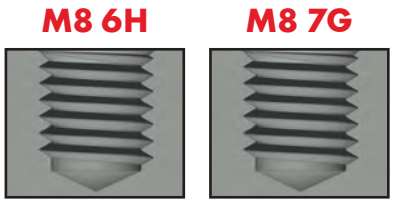
GW - GWi



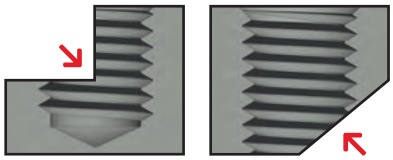
The same thread whirler can be used for right- and left-hand threads



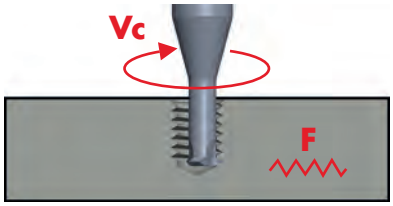
For threads to be cut near to the bottom of blind holes



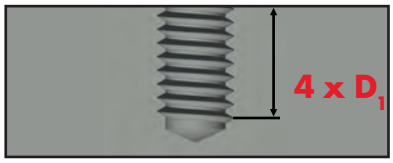
Required tolerance adjustable as per users' choice



For threads with interrupted cut or with oblique entrance or exit

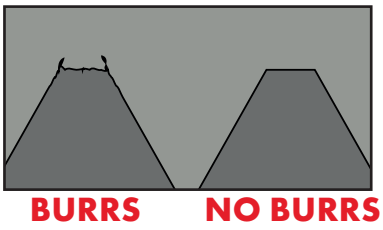


The cutting speed and feed rate can be matched individually to each work-piece material



Ideal for deep blind holes

GWi5000 & GWi6000



For whirling burr-free threads

THREAD TAPS NANO

DC Material classification

Material groups		Material designation	Hardness (HB)	Tensile strength Rm (N/mm²)	Elongation A (%)
10 Steels	11	Free-cutting steels	< 200	< 700	< 10
	12	Structural, cementation steels	< 200	< 700	< 30
	13	Carbon steels	< 300	< 1000	< 20
	14	Alloy steels < 850 N/mm²	< 250	< 850	< 30
	15	Alloy steels hard. / temp. > 850 - < 1150 N/mm²	> 250	> 850	< 30
	16	High tensile alloy steels ≤ 44 HRC	> 250	> 850	< 12
	17	Alloy steels tempered > 44 - ≤ 54 HRC	> 410	> 1400	< 2
	18	Alloy steels hardened > 54 - ≤ 63 HRC	> 560	> 1980	< 2
20 Stainless steels	21	Free machining stainless steels	< 250	< 850	< 25
	22	Austenitic stainless steels	< 250	< 850	> 20
	23	Ferritic and martensitic < 850 N/mm²	< 250	< 850	> 20
	24	Ferritic and martensitic > 850 - < 1150 N/mm²	> 250	> 850	> 15
30 Cast iron	31	Cast iron	< 250	< 850	< 10
	32	Spheroidal graphite + malleable cast iron	< 250	< 850	> 10
40 Titanium	41	Pure titanium	< 250	< 850	> 20
	42	Titanium alloys	> 250	> 850	< 20
50 Nickel	51	Nickel alloys 1 ≤ 850 N/mm²	< 250	< 850	> 25
	52	Nickel alloys 2 > 850 - ≤ 1150 N/mm²	> 250	> 850	< 25
	53	Nickel alloys 3 > 1150 - ≤ 1600 N/mm²	> 340	> 1150	< 20
60 Copper	61	Pure copper (electrolytic copper)	< 120	< 400	> 12
	62	Short chip brass, phosphor bronze, gun metal	< 200	< 700	< 12
	63	Long chip brass	< 200	< 700	> 12
	64	Lead free brass	< 220	< 700	> 15
70 Aluminium Magnesium	71	Al unalloyed	< 100	< 350	> 15
	72	Al alloyed Si < 1.5 %	< 150	< 500	> 15
	73	Al alloyed Si > 1.5 % - < 10 %	< 120	< 400	< 15
	74	Al alloyed Si > 10 %, Mg-alloys	< 120	< 400	< 10
80 Plastic compounds	81	Thermoplastics	-	-	-
	82	Duroplastics	-	-	-
	83	Glass fibre reinforced plastics	-	-	-
90 Precious metals	91	Yellow gold	-	-	-
	92	Red gold	-	-	-
	93	White gold	-	-	-
	94	Silver	-	-	-

Optimal with cutting oil Suitable with cutting oil Optimal with emulsion Suitable with emulsion

THREAD TAPS NANO

CLASSIC SYNCHRO

	Vc (m/min) Guide Line Ø 0.3 - 1.4 mm Standard	Ø 0.3 - 1.4 mm Coated	Ø 1.4 - 2.8 mm Standard	Ø 1.4 - 2.8 mm Coated	TAN Normal materials TAN40	TAN40VS	TAN50	TAN50VS	TAZ Tough materials TAZ40	TAZ40VS	TAZ50	TAZ50VS	CMS Brittle materials CMS50	CMS50VS	
11		4 - 10		12 - 20		O E		O E							11
12		4 - 10		12 - 20		O E		O E							12
13		4 - 10		12 - 20		O E		O E							13
14		4 - 10		12 - 20		O E		O E							14
15															15
16															16
17															17
18															18
21		4 - 10		12 - 20						O E		O E			21
22		4 - 10		12 - 20						O E		O E			22
23		3 - 6		6 - 12						O		O			23
24		3 - 6		6 - 12											24
31		4 - 10		12 - 20										O E	31
32		4 - 10		12 - 20		O E		O E							32
41	2 - 4	2 - 4	4 - 8	4 - 8						O		O			41
42	2 - 4	2 - 4	4 - 8	4 - 8						O		O			42
51															51
52															52
53															53
61		4 - 10		12 - 20						O E		O E			61
62	4 - 10	4 - 10	12 - 20	12 - 20	O E	O E	O E	O E					O E A	O E A	62
63	4 - 10	4 - 10	12 - 20	12 - 20	O E	O E	O E	O E					O E	O E	63
64		4 - 10		12 - 20						O E		O E			64
71		4 - 10		12 - 20		O E		O E							71
72		4 - 10		12 - 20		O E		O E							72
73		4 - 10		12 - 20		O E		O E						O	73
74		4 - 10		12 - 20		O E		O E						O E	74
81		4 - 10		12 - 20		O E		O E							81
82															82
83		4 - 10		12 - 20										E A	83
91	4 - 10		12 - 20		O E		O E								91
92		4 - 10		12 - 20		O		O							92
93		4 - 10		12 - 20		O E		O E					O E	O E	93
94		4 - 10		12 - 20		O		O							94

A **Optimal with air**

A **Suitable with air**

Limited

The indicated values are a guideline.

THREAD FORMERS NANO

DC Material classification

Material groups		Material designation	Hardness (HB)	Tensile strength Rm (N/mm²)	Elongation A (%)
10 Steels	11	Free-cutting steels	< 200	< 700	< 10
	12	Structural, cementation steels	< 200	< 700	< 30
	13	Carbon steels	< 300	< 1000	< 20
	14	Alloy steels < 850 N/mm²	< 250	< 850	< 30
	15	Alloy steels hard. / temp. > 850 - < 1150 N/mm²	> 250	> 850	< 30
	16	High tensile alloy steels ≤ 44 HRC	> 250	> 850	< 12
	17	Alloy steels tempered > 44 - ≤ 54 HRC	> 410	> 1400	< 2
	18	Alloy steels hardened > 54 - ≤ 63 HRC	> 560	> 1980	< 2
20 Stainless steels	21	Free machining stainless steels	< 250	< 850	< 25
	22	Austenitic stainless steels	< 250	< 850	> 20
	23	Ferritic and martensitic < 850 N/mm²	< 250	< 850	> 20
	24	Ferritic and martensitic > 850 - < 1150 N/mm²	> 250	> 850	> 15
30 Cast iron	31	Cast iron	< 250	< 850	< 10
	32	Spheroidal graphite + malleable cast iron	< 250	< 850	> 10
40 Titanium	41	Pure titanium	< 250	< 850	> 20
	42	Titanium alloys	> 250	> 850	< 20
50 Nickel	51	Nickel alloys 1 ≤ 850 N/mm²	< 250	< 850	> 25
	52	Nickel alloys 2 > 850 - ≤ 1150 N/mm²	> 250	> 850	< 25
	53	Nickel alloys 3 > 1150 - ≤ 1600 N/mm²	> 340	> 1150	< 20
60 Copper	61	Pure copper (electrolytic copper)	< 120	< 400	> 12
	62	Short chip brass, phosphor bronze, gun metal	< 200	< 700	< 12
	63	Long chip brass	< 200	< 700	> 12
	64	Lead free brass	< 220	< 700	> 15
70 Aluminium Magnesium	71	Al unalloyed	< 100	< 350	> 15
	72	Al alloyed Si < 1.5 %	< 150	< 500	> 15
	73	Al alloyed Si > 1.5 % - < 10 %	< 120	< 400	< 15
	74	Al alloyed Si > 10 %, Mg-alloys	< 120	< 400	< 10
80 Plastic compounds	81	Thermoplastics	-	-	-
	82	Duroplastics	-	-	-
	83	Glass fibre reinforced plastics	-	-	-
90 Precious metals	91	Yellow gold	-	-	-
	92	Red gold	-	-	-
	93	White gold	-	-	-
	94	Silver	-	-	-

Optimal with cutting oil | Suitable with cutting oil | Optimal with emulsion | Suitable with emulsion

THREAD FORMERS NANO

	Vc (m/min) Guide Line Ø 0.3 - 1.4 mm Coated	Ø 1.4 - 2.8 mm Coated	FA Normal materials FA80VS	FA83VS	CFA Non-ferrous materials CFA80VS	CFA83VS	
							
11	4 - 10	12 - 20	O E	O E			11
12	4 - 10	12 - 20	O E	O E			12
13	4 - 10	12 - 20	O E	O E			13
14	4 - 10	12 - 20	O E	O E			14
15	3 - 6	6 - 12	O	O			15
16							16
17							17
18							18
21	4 - 10	12 - 20	O E	O E			21
22	3 - 6	6 - 12	O E	O E			22
23	3 - 6	6 - 12	O E	O E			23
24	3 - 6	6 - 12	O	O			24
31							31
32							32
41							41
42							42
51	3 - 6	6 - 12	O	O			51
52							52
53							53
61	4 - 10	12 - 20	O E	O E			61
62	4 - 10	12 - 20			O E	O E	62
63	4 - 10	12 - 20	O E	O E	O E	O E	63
64	4 - 10	12 - 20	O E	O E			64
71	4 - 10	12 - 20	O E	O E			71
72	4 - 10	12 - 20	O E	O E			72
73	4 - 10	12 - 20	O E	O E			73
74							74
81							81
82							82
83							83
91	4 - 10	12 - 20	O E	O E	O E	O E	91
92	4 - 10	12 - 20	O E	O E	O E	O E	92
93	4 - 10	12 - 20					93
94	4 - 10	12 - 20	O E	O E	O E	O E	94

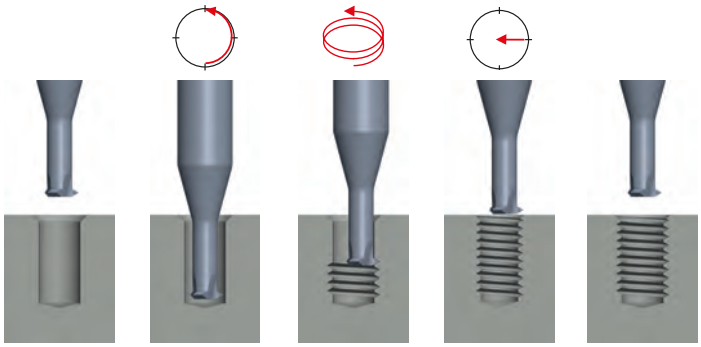
A Optimal with air **A Suitable with air** **Limited**

The indicated values are a guideline.

APPLICATION CHART GW

nano

Programming cycle for thread whirling GW1000 and GW2000



Application chart for thread whirling

	Material groups		Material designation	Hardness (HB)	Tensile strength Rm (N/mm²)	Lubricant	
						Standard	Coated
10	Steels	11	Free-cutting steels	< 200	< 700		O E
		12	Structural, cementation steels	< 200	< 700		O E
		13	Carbon steels	< 300	< 1000		O E
		14	Alloy steels < 850 N/mm²	< 250	< 850		O E
		15	Alloy steels hard. / temp. > 850 - < 1150 N/mm²	> 250	> 850		O E
		16	High tensile alloy steels ≤ 44 HRC	> 250	> 850		O E
		17	Alloy steels tempered > 44 - ≤ 54 HRC	> 410	> 1400		O E
		18	Alloy steels hardened > 54 - ≤ 63 HRC	> 560	> 1980		
20	Stainless steels	21	Free machining stainless steels	< 250	< 850		O E
		22	Austenitic stainless steels	< 250	< 850		O E
		23	Ferritic and martensitic < 850 N/mm²	< 250	< 850		O E
		24	Ferritic and martensitic > 850 - < 1150 N/mm²	> 250	> 850		O E
30	Cast iron	31	Cast iron	< 250	< 850		O E A
		32	Spheroidal graphite + malleable cast iron	< 250	< 850		O E
40	Titanium	41	Pure titanium	< 250	< 850	O E	O E
		42	Titanium alloys	> 250	> 850	O E	O E
50	Nickel	51	Nickel alloys 1 ≤ 850 N/mm²	< 250	< 850		O E
		52	Nickel alloys 2 > 850 - ≤ 1150 N/mm²	> 250	> 850		O E
		53	Nickel alloys 3 > 1150 - ≤ 1600 N/mm²	> 340	> 1150		O E
60	Copper	61	Pure copper (electrolytic copper)	< 120	< 400	O E	O E
		62	Short chip brass, phosphor bronze, gun metal	< 200	< 700	O E A	O E A
		63	Long chip brass	< 200	< 700	O E	O E
		64	Lead free brass	< 220	< 700	O E	O E
70	Aluminium Magnesium	71	Al unalloyed	< 100	< 350	O E	O E
		72	Al alloyed Si < 1.5 %	< 150	< 500	O E	O E
		73	Al alloyed Si > 1.5 % - < 10 %	< 120	< 400		O E
		74	Al alloyed Si > 10 %, Mg-alloys	< 120	< 400		O E
80	Plastic compounds	81	Thermoplastics	-	-	E	E
		82	Duroplastics	-	-	E	E
		83	Glass fibre reinforced plastics	-	-		E A
90	Precious metals	91	Yellow gold	-	-	O E	O E
		92	Red gold	-	-	O E	O E
		93	White gold	-	-		O E
		94	Silver	-	-		O E

O Optimal with cutting oil O Suitable with cutting oil E Optimal with emulsion E Suitable with emulsion

THREAD WHIRLING GW

GW1000

GW1115
GW1116

VS

	Vc (m/min)		Milling fz (mm/tooth)	
	Standard	Coated	Ø 0.30 - 1.40	
11		80 - 100		0.004 - 0.02
12		80 - 100		0.004 - 0.02
13		70 - 90		0.004 - 0.02
14		70 - 90		0.004 - 0.02
15		30 - 50		0.004 - 0.02
16		15 - 40		0.004 - 0.02
17		15 - 30		0.004 - 0.02
18				
21		40 - 60		0.004 - 0.02
22		30 - 50		0.004 - 0.02
23		30 - 50		0.004 - 0.02
24		30 - 50		0.004 - 0.02
31		90 - 120		0.004 - 0.02
32		70 - 90		0.004 - 0.02
41	10 - 20	20 - 40	0.004 - 0.02	0.004 - 0.02
42	10 - 20	15 - 35	0.004 - 0.02	0.004 - 0.02
51		20 - 40		0.004 - 0.02
52		20 - 40		0.004 - 0.02
53		20 - 30		0.004 - 0.02
61	150 - 200	200 - 250	0.004 - 0.02	0.004 - 0.02
62	100 - 150	150 - 200	0.004 - 0.02	0.004 - 0.02
63	100 - 150	150 - 200	0.004 - 0.02	0.004 - 0.02
64	100 - 150	150 - 200	0.004 - 0.02	0.004 - 0.02
71	150 - 200	200 - 250	0.004 - 0.02	0.004 - 0.02
72	150 - 200	200 - 250	0.004 - 0.02	0.004 - 0.02
73		200 - 250		0.004 - 0.02
74		200 - 250		0.004 - 0.02
81	150 - 200	200 - 250	0.004 - 0.02	0.004 - 0.02
82	80 - 120	100 - 200	0.004 - 0.02	0.004 - 0.02
83		80 - 100		0.004 - 0.02
91	100 - 150	150 - 200	0.004 - 0.02	0.004 - 0.02
92	70 - 90	90 - 120	0.004 - 0.02	0.004 - 0.02
93		30 - 50		0.004 - 0.02
94		90 - 120		0.004 - 0.02

GW2000

GW2015
GW2016

VS VS

	Vc (m/min)		Milling fz (mm/tooth)			
	Standard	Coated	Ø 0.50 - 1.00		Ø 1.01 - 2.74	
11		80 - 100		0.004 - 0.01		0.01 - 0.05
12		80 - 100		0.004 - 0.01		0.01 - 0.05
13		70 - 90		0.004 - 0.01		0.01 - 0.05
14		70 - 90		0.004 - 0.01		0.01 - 0.05
15		30 - 50		0.004 - 0.01		0.01 - 0.05
16		15 - 40		0.003 - 0.01		0.006 - 0.03
17		15 - 30		0.003 - 0.01		0.006 - 0.025
18						
21		40 - 60		0.004 - 0.01		0.01 - 0.05
22		30 - 50		0.004 - 0.01		0.01 - 0.03
23		30 - 50		0.004 - 0.01		0.01 - 0.03
24		30 - 50		0.004 - 0.01		0.01 - 0.03
31		90 - 120		0.004 - 0.01		0.01 - 0.05
32		70 - 90		0.004 - 0.01		0.01 - 0.05
41	10 - 20	20 - 40	0.004 - 0.01	0.004 - 0.01	0.01 - 0.03	0.01 - 0.03
42	10 - 20	15 - 35	0.004 - 0.01	0.004 - 0.01	0.01 - 0.03	0.01 - 0.03
51		20 - 40		0.004 - 0.01		0.01 - 0.03
52		20 - 40		0.004 - 0.01		0.01 - 0.03
53		20 - 30		0.003 - 0.01		0.006 - 0.03
61	150 - 200	200 - 250	0.004 - 0.01	0.004 - 0.01	0.01 - 0.05	0.01 - 0.05
62	100 - 150	150 - 200	0.004 - 0.01	0.004 - 0.01	0.01 - 0.05	0.01 - 0.05
63	100 - 150	150 - 200	0.004 - 0.01	0.004 - 0.01	0.01 - 0.05	0.01 - 0.05
64	100 - 150	150 - 200	0.004 - 0.01	0.004 - 0.01	0.01 - 0.05	0.01 - 0.05
71	150 - 200	200 - 300	0.004 - 0.01	0.004 - 0.01	0.01 - 0.05	0.01 - 0.05
72	150 - 200	200 - 300	0.004 - 0.01	0.004 - 0.01	0.01 - 0.05	0.01 - 0.05
73		200 - 300		0.004 - 0.01		0.01 - 0.05
74		200 - 300		0.004 - 0.01		0.01 - 0.05
81	150 - 200	200 - 300	0.004 - 0.01	0.004 - 0.01	0.01 - 0.05	0.01 - 0.05
82	80 - 120	100 - 200	0.004 - 0.01	0.004 - 0.01	0.01 - 0.05	0.01 - 0.05
83		80 - 100		0.004 - 0.01		0.01 - 0.05
91	100 - 150	150 - 200	0.004 - 0.01	0.004 - 0.01	0.01 - 0.05	0.01 - 0.05
92	70 - 90	90 - 120	0.004 - 0.01	0.004 - 0.01	0.01 - 0.05	0.01 - 0.05
93		30 - 50		0.004 - 0.01		0.01 - 0.05
94		90 - 120		0.004 - 0.01		0.01 - 0.05

A Optimal with air

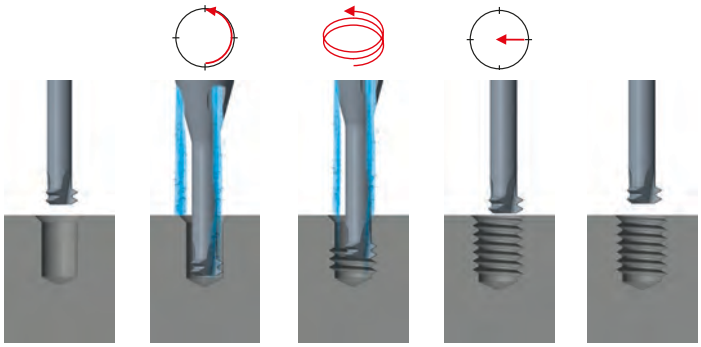
A Suitable with air

The indicated values are a guideline.

APPLICATION CHART GW - GWi

nano

Programming cycle for thread whirling GW3000 - GWi3000

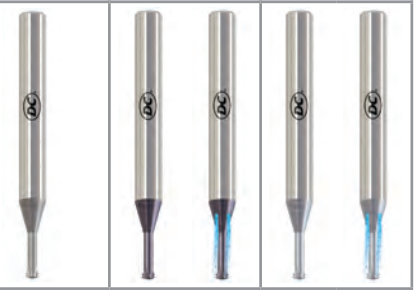


Application chart for thread whirling

	Material groups		Material designation	Hardness (HB)	Tensile strength Rm (N/mm²)	Lubricant	
						Standard	Coated
10	Steels	11	Free-cutting steels	< 200	< 700		O E
		12	Structural, cementation steels	< 200	< 700		O E
		13	Carbon steels	< 300	< 1000		O E
		14	Alloy steels < 850 N/mm²	< 250	< 850		O E
		15	Alloy steels hard. / temp. > 850 - < 1150 N/mm²	> 250	> 850		O E
		16	High tensile alloy steels ≤ 44 HRC	> 250	> 850		O E
		17	Alloy steels tempered > 44 - ≤ 54 HRC	> 410	> 1400		O E
		18	Alloy steels hardened > 54 - ≤ 63 HRC	> 560	> 1980		
20	Stainless steels	21	Free machining stainless steels	< 250	< 850		O E
		22	Austenitic stainless steels	< 250	< 850		O E
		23	Ferritic and martensitic < 850 N/mm²	< 250	< 850		O E
		24	Ferritic and martensitic > 850 - < 1150 N/mm²	> 250	> 850		O E
30	Cast iron	31	Cast iron	< 250	< 850		O E A
		32	Spheroidal graphite + malleable cast iron	< 250	< 850		O E
40	Titanium	41	Pure titanium	< 250	< 850	O E	O E
		42	Titanium alloys	> 250	> 850	O E	O E
50	Nickel	51	Nickel alloys 1 ≤ 850 N/mm²	< 250	< 850		O E
		52	Nickel alloys 2 > 850 - ≤ 1150 N/mm²	> 250	> 850		O E
		53	Nickel alloys 3 > 1150 - ≤ 1600 N/mm²	> 340	> 1150		O E
60	Copper	61	Pure copper (electrolytic copper)	< 120	< 400	O E	O E
		62	Short chip brass, phosphor bronze, gun metal	< 200	< 700	O E A	O E A
		63	Long chip brass	< 200	< 700	O E	O E
		64	Lead free brass	< 220	< 700	O E	O E
70	Aluminium Magnesium	71	Al unalloyed	< 100	< 350	O E	O E
		72	Al alloyed Si < 1.5 %	< 150	< 500	O E	O E
		73	Al alloyed Si > 1.5 % - < 10 %	< 120	< 400		O E
		74	Al alloyed Si > 10 %, Mg-alloys	< 120	< 400		O E
80	Plastic compounds	81	Thermoplastics	-	-	E	E
		82	Duroplastics	-	-	E	E
		83	Glass fibre reinforced plastics	-	-		E A
90	Precious metals	91	Yellow gold	-	-	O E	O E
		92	Red gold	-	-	O E	O E
		93	White gold	-	-		O E
		94	Silver	-	-		O E

O Optimal with cutting oil O Suitable with cutting oil E Optimal with emulsion E Suitable with emulsion

THREAD WHIRLING GW - GWi

	Vc (m/min)		GW3000 - GWi3000			
			GW3015 GW3016 GW3017 GW3019	GW3015VS GW3016VS GW3017VS GW3019VS GWi3065VS GWi3066VS GWi3067VS GWi3069VS	GW3015VX GW3016VX GW3017VX GWi3065VX GWi3066VX GWi3067VX	
						
				VS	VX	
	Standard	Coated	Milling fz (mm/tooth) Ø 0.80 - 2.74			
11		80 - 100		0.01 - 0.05	0.01 - 0.05	11
12		80 - 100		0.01 - 0.05	0.01 - 0.05	12
13		70 - 90		0.01 - 0.05	0.01 - 0.05	13
14		70 - 90		0.01 - 0.05	0.01 - 0.05	14
15		30 - 50		0.01 - 0.05	0.01 - 0.05	15
16		15 - 40		0.006 - 0.03	0.006 - 0.03	16
17		15 - 30		0.006 - 0.025	0.006 - 0.025	17
18						18
21		40 - 60		0.01 - 0.05	0.01 - 0.05	21
22		30 - 50		0.01 - 0.03	0.01 - 0.03	22
23		30 - 50		0.01 - 0.03	0.01 - 0.03	23
24		30 - 50		0.01 - 0.03	0.01 - 0.03	24
31		90 - 120		0.01 - 0.05	0.01 - 0.05	31
32		70 - 90		0.01 - 0.05	0.01 - 0.05	32
41	10 - 20	20 - 40	0.01 - 0.03	0.01 - 0.03	0.01 - 0.03	41
42	10 - 20	15 - 35	0.01 - 0.03	0.01 - 0.03	0.01 - 0.03	42
51		20 - 40		0.01 - 0.03	0.01 - 0.03	51
52		20 - 40		0.01 - 0.03	0.01 - 0.03	52
53		20 - 30		0.006 - 0.03	0.006 - 0.03	53
61	150 - 200	200 - 250	0.01 - 0.05	0.01 - 0.05	0.01 - 0.05	61
62	100 - 150	150 - 200	0.01 - 0.05	0.01 - 0.05	0.01 - 0.05	62
63	100 - 150	150 - 200	0.01 - 0.05	0.01 - 0.05	0.01 - 0.05	63
64	100 - 150	150 - 200	0.01 - 0.05	0.01 - 0.05	0.01 - 0.05	64
71	150 - 200	200 - 300	0.01 - 0.05	0.01 - 0.05	0.01 - 0.05	71
72	150 - 200	200 - 300	0.01 - 0.05	0.01 - 0.05	0.01 - 0.05	72
73		200 - 300		0.01 - 0.05	0.01 - 0.05	73
74		200 - 300		0.01 - 0.05	0.01 - 0.05	74
81	150 - 200	200 - 300	0.01 - 0.05	0.01 - 0.05	0.01 - 0.05	81
82	80 - 120	100 - 200	0.01 - 0.05	0.01 - 0.05	0.01 - 0.05	82
83		80 - 100		0.01 - 0.05	0.01 - 0.05	83
91	100 - 150	150 - 200	0.01 - 0.05	0.01 - 0.05	0.01 - 0.05	91
92	70 - 90	90 - 120	0.01 - 0.05	0.01 - 0.05	0.01 - 0.05	92
93		30 - 50		0.01 - 0.05	0.01 - 0.05	93
94		90 - 120		0.01 - 0.05	0.01 - 0.05	94

A Optimal with air

A Suitable with air

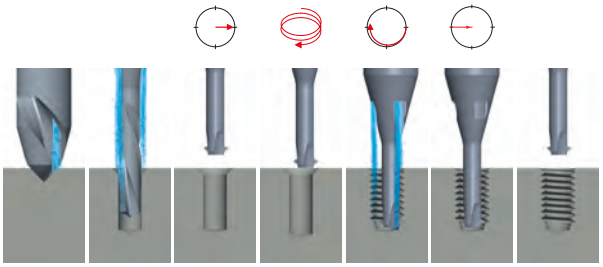
The indicated values are a guideline.

APPLICATION CHART GWi

nano

Programming cycle for thread whirling GWi5000

GWi5000



Application chart for thread whirling

	Material groups		Material designation	Hardness (HB)	Tensile strength Rm (N/mm²)	Lubricant	
						Standard	Coated
10	Steels	11	Free-cutting steels	< 200	< 700		O E
		12	Structural, cementation steels	< 200	< 700		O E
		13	Carbon steels	< 300	< 1000		O E
		14	Alloy steels < 850 N/mm²	< 250	< 850		O E
		15	Alloy steels hard. / temp. > 850 - < 1150 N/mm²	> 250	> 850		O E
		16	High tensile alloy steels ≤ 44 HRC	> 250	> 850		O E
		17	Alloy steels tempered > 44 - ≤ 54 HRC	> 410	> 1400		O E
		18	Alloy steels hardened > 54 - ≤ 63 HRC	> 560	> 1980		
20	Stainless steels	21	Free machining stainless steels	< 250	< 850		O E
		22	Austenitic stainless steels	< 250	< 850		O E
		23	Ferritic and martensitic < 850 N/mm²	< 250	< 850		O E
		24	Ferritic and martensitic > 850 - < 1150 N/mm²	> 250	> 850		O E
30	Cast iron	31	Cast iron	< 250	< 850		O E
		32	Spheroidal graphite + malleable cast iron	< 250	< 850		O E
40	Titanium	41	Pure titanium	< 250	< 850		O E
		42	Titanium alloys	> 250	> 850		O E
50	Nickel	51	Nickel alloys 1 ≤ 850 N/mm²	< 250	< 850		O E
		52	Nickel alloys 2 > 850 - ≤ 1150 N/mm²	> 250	> 850		O E
		53	Nickel alloys 3 > 1150 - ≤ 1600 N/mm²	> 340	> 1150		O E
60	Copper	61	Pure copper (electrolytic copper)	< 120	< 400		O E
		62	Short chip brass, phosphor bronze, gun metal	< 200	< 700		O E
		63	Long chip brass	< 200	< 700		O E
		64	Lead free brass	< 220	< 700		O E
70	Aluminium Magnesium	71	Al unalloyed	< 100	< 350		O E
		72	Al alloyed Si < 1.5 %	< 150	< 500		O E
		73	Al alloyed Si > 1.5 % - < 10 %	< 120	< 400		O E
		74	Al alloyed Si > 10 %, Mg-alloys	< 120	< 400		O E
80	Plastic compounds	81	Thermoplastics	-	-		E
		82	Duroplastics	-	-		E
		83	Glass fibre reinforced plastics	-	-		E
90	Precious metals	91	Yellow gold	-	-		O E
		92	Red gold	-	-		O E
		93	White gold	-	-		O E
		94	Silver	-	-		O E

O Optimal with cutting oil O Suitable with cutting oil E Optimal with emulsion E Suitable with emulsion

THREAD WHIRLING GWi

	GWi5000			
	GWi5065VS GWi5066VS GWi5067VS			
				
	VS			
	Vc (m/min)		Milling fz (mm/tooth)	
	Standard	Coated	Ø 0.80 - 2.74	
11		80 - 100	0.007 - 0.05	11
12		80 - 100	0.007 - 0.05	12
13		70 - 90	0.007 - 0.05	13
14		70 - 90	0.007 - 0.05	14
15		30 - 50	0.007 - 0.05	15
16		15 - 40	0.004 - 0.03	16
17		15 - 30	0.004 - 0.025	17
18				18
21		40 - 60	0.007 - 0.05	21
22		30 - 50	0.007 - 0.03	22
23		30 - 50	0.007 - 0.03	23
24		30 - 50	0.007 - 0.03	24
31		90 - 120	0.007 - 0.05	31
32		70 - 90	0.007 - 0.05	32
41		20 - 40	0.007 - 0.03	41
42		15 - 35	0.007 - 0.03	42
51		20 - 40	0.007 - 0.03	51
52		20 - 40	0.007 - 0.03	52
53		20 - 30	0.004 - 0.03	53
61		200 - 250	0.007 - 0.05	61
62		150 - 200	0.007 - 0.05	62
63		150 - 200	0.007 - 0.05	63
64		150 - 200	0.007 - 0.05	64
71		200 - 300	0.007 - 0.05	71
72		200 - 300	0.007 - 0.05	72
73		200 - 300	0.007 - 0.05	73
74		200 - 300	0.007 - 0.05	74
81		200 - 300	0.007 - 0.05	81
82		100 - 200	0.007 - 0.05	82
83		80 - 100	0.007 - 0.05	83
91		150 - 200	0.007 - 0.05	91
92		90 - 120	0.007 - 0.05	92
93		30 - 50	0.007 - 0.05	93
94		90 - 120	0.007 - 0.05	94

A Optimal with air

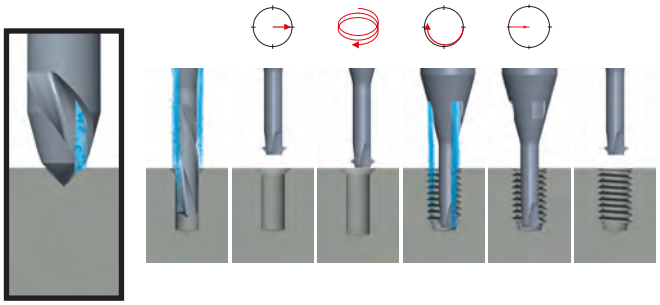
A Suitable with air

The indicated values are a guideline.

APPLICATION CHART C315VS

nano

Programming cycle for spotting drills C315VS



Application chart for spotting drills

	Material groups		Material designation	Hardness (HB)	Tensile strength Rm (N/mm²)	Lubricant	
						Standard	Coated
10	Steels	11	Free-cutting steels	< 200	< 700		O E
		12	Structural, cementation steels	< 200	< 700		O E
		13	Carbon steels	< 300	< 1000		O E
		14	Alloy steels < 850 N/mm²	< 250	< 850		O E
		15	Alloy steels hard. / temp. > 850 - < 1150 N/mm²	> 250	> 850		O E
		16	High tensile alloy steels ≤ 44 HRC	> 250	> 850		O E
		17	Alloy steels tempered > 44 - ≤ 54 HRC	> 410	> 1400		O E
		18	Alloy steels hardened > 54 - ≤ 63 HRC	> 560	> 1980		
20	Stainless steels	21	Free machining stainless steels	< 250	< 850		O E
		22	Austenitic stainless steels	< 250	< 850		O E
		23	Ferritic and martensitic < 850 N/mm²	< 250	< 850		O E
		24	Ferritic and martensitic > 850 - < 1150 N/mm²	> 250	> 850		O E
30	Cast iron	31	Cast iron	< 250	< 850		O E
		32	Spheroidal graphite + malleable cast iron	< 250	< 850		O E
40	Titanium	41	Pure titanium	< 250	< 850		O E
		42	Titanium alloys	> 250	> 850		O E
50	Nickel	51	Nickel alloys 1 ≤ 850 N/mm²	< 250	< 850		O E
		52	Nickel alloys 2 > 850 - ≤ 1150 N/mm²	> 250	> 850		O E
		53	Nickel alloys 3 > 1150 - ≤ 1600 N/mm²	> 340	> 1150		O E
60	Copper	61	Pure copper (electrolytic copper)	< 120	< 400		O E
		62	Short chip brass, phosphor bronze, gun metal	< 200	< 700		O E
		63	Long chip brass	< 200	< 700		O E
		64	Lead free brass	< 220	< 700		O E
70	Aluminium Magnesium	71	Al unalloyed	< 100	< 350		O E
		72	Al alloyed Si < 1.5 %	< 150	< 500		O E
		73	Al alloyed Si > 1.5 % - < 10 %	< 120	< 400		O E
		74	Al alloyed Si > 10 %, Mg-alloys	< 120	< 400		O E
80	Plastic compounds	81	Thermoplastics	-	-		E
		82	Duroplastics	-	-		E
		83	Glass fibre reinforced plastics	-	-		E
90	Precious metals	91	Yellow gold	-	-		O E
		92	Red gold	-	-		O E
		93	White gold	-	-		O E
		94	Silver	-	-		O E

O Optimal with cutting oil O Suitable with cutting oil E Optimal with emulsion E Suitable with emulsion

SPOTTING DRILLS

		C315VS			
					
		VS	VS	VS	
	Vc (m/min) Guide Line Coated	Feed rate f (mm/rev.)			
		Ø 1.40	Ø 2.00	Ø 3.00	
11	120	0.05	0.08	0.10	11
12	120	0.05	0.08	0.10	12
13	120	0.05	0.08	0.10	13
14	80	0.05	0.08	0.10	14
15	60	0.03	0.04	0.06	15
16	40	0.02	0.03	0.04	16
17	40	0.02	0.03	0.04	17
18					18
21	60	0.03	0.04	0.06	21
22	50	0.03	0.04	0.06	22
23	50	0.03	0.04	0.06	23
24	50	0.03	0.04	0.06	24
31	100	0.04	0.05	0.07	31
32	100	0.04	0.05	0.07	32
41	25	0.03	0.04	0.06	41
42	25	0.04	0.07	0.09	42
51	25	0.025	0.03	0.04	51
52	20	0.025	0.03	0.04	52
53	10	0.025	0.03	0.04	53
61	100	0.06	0.09	0.11	61
62	100	0.06	0.09	0.11	62
63	80	0.06	0.09	0.11	63
64	80	0.06	0.09	0.11	64
71	150	0.06	0.09	0.11	71
72	150	0.06	0.09	0.11	72
73	100	0.06	0.09	0.11	73
74	100	0.06	0.09	0.11	74
81	200	0.08	0.11	0.13	81
82	200	0.08	0.11	0.13	82
83	100	0.08	0.11	0.13	83
91	200	0.08	0.11	0.13	91
92	150	0.08	0.11	0.13	92
93	100	0.08	0.11	0.13	93
94	100	0.08	0.11	0.13	94

A Optimal with air

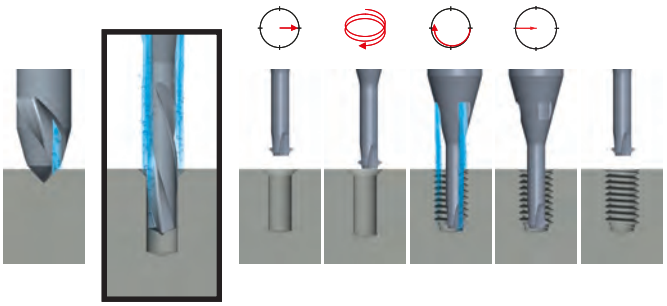
A Suitable with air

The indicated values are a guideline.

APPLICATION CHART FZ315VS

nano

Programming cycle for twist drills made of solid carbide FZ315VS



Application chart for twist drills

	Material groups		Material designation	Hardness (HB)	Tensile strength Rm (N/mm²)	Lubricant	
						Standard	Coated
10	Steels	11	Free-cutting steels	< 200	< 700		O E
		12	Structural, cementation steels	< 200	< 700		O E
		13	Carbon steels	< 300	< 1000		O E
		14	Alloy steels < 850 N/mm²	< 250	< 850		O E
		15	Alloy steels hard. / temp. > 850 - < 1150 N/mm²	> 250	> 850		O E
		16	High tensile alloy steels ≤ 44 HRC	> 250	> 850		O E
		17	Alloy steels tempered > 44 - ≤ 54 HRC	> 410	> 1400		O E
		18	Alloy steels hardened > 54 - ≤ 63 HRC	> 560	> 1980		
20	Stainless steels	21	Free machining stainless steels	< 250	< 850		O E
		22	Austenitic stainless steels	< 250	< 850		O E
		23	Ferritic and martensitic < 850 N/mm²	< 250	< 850		O E
		24	Ferritic and martensitic > 850 - < 1150 N/mm²	> 250	> 850		O E
30	Cast iron	31	Cast iron	< 250	< 850		O E
		32	Spheroidal graphite + malleable cast iron	< 250	< 850		O E
40	Titanium	41	Pure titanium	< 250	< 850		O E
		42	Titanium alloys	> 250	> 850		O E
50	Nickel	51	Nickel alloys 1 ≤ 850 N/mm²	< 250	< 850		O E
		52	Nickel alloys 2 > 850 - ≤ 1150 N/mm²	> 250	> 850		O E
		53	Nickel alloys 3 > 1150 - ≤ 1600 N/mm²	> 340	> 1150		O E
60	Copper	61	Pure copper (electrolytic copper)	< 120	< 400		O E
		62	Short chip brass, phosphor bronze, gun metal	< 200	< 700		O E
		63	Long chip brass	< 200	< 700		O E
		64	Lead free brass	< 220	< 700		O E
70	Aluminium Magnesium	71	Al unalloyed	< 100	< 350		O E
		72	Al alloyed Si < 1.5 %	< 150	< 500		O E
		73	Al alloyed Si > 1.5 % - < 10 %	< 120	< 400		O E
		74	Al alloyed Si > 10 %, Mg-alloys	< 120	< 400		O E
80	Plastic compounds	81	Thermoplastics	-	-		E
		82	Duroplastics	-	-		E
		83	Glass fibre reinforced plastics	-	-		E
90	Precious metals	91	Yellow gold	-	-		O E
		92	Red gold	-	-		O E
		93	White gold	-	-		O E
		94	Silver	-	-		O E

O Optimal with cutting oil O Suitable with cutting oil E Optimal with emulsion E Suitable with emulsion

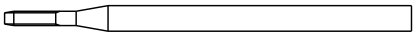
TWIST DRILLS

	Vc (m/min) Guide Line Ø 0.58 - 2.0 Coated	FZ315VS					
							
		VS	VS	VS	VS	Q1 Qx Qx	
		Feed rate f (mm/rev.)					
		Ø0.58-0.82	Ø0.83-1.07	Ø1.08-1.46	Ø1.47-2.0	Q1	Qx
11	40 - 60	0.02-0.035	0.03-0.045	0.04-0.055	0.05-0.065	$1xd_1$-$4xd_1$	$1xd_1$-$2xd_1$
12	40 - 60	0.02-0.035	0.03-0.045	0.04-0.055	0.05-0.065	$1xd_1$-$4xd_1$	$1xd_1$-$2xd_1$
13	35 - 55	0.015-0.025	0.025-0.035	0.035-0.045	0.045-0.055	$1xd_1$-$4xd_1$	$1xd_1$-$2xd_1$
14	35 - 55	0.015-0.025	0.025-0.035	0.035-0.045	0.045-0.055	$1xd_1$-$4xd_1$	$1xd_1$-$2xd_1$
15	35 - 55	0.015-0.025	0.025-0.035	0.035-0.045	0.045-0.055	$1xd_1$-$4xd_1$	$1xd_1$-$2xd_1$
16	35 - 55	0.015-0.025	0.025-0.035	0.035-0.045	0.045-0.055	$1xd_1$-$4xd_1$	$1xd_1$-$2xd_1$
17	30 - 45	0.015-0.025	0.025-0.035	0.035-0.045	0.045-0.055	$1xd_1$-$4xd_1$	$1xd_1$-$2xd_1$
18							
21	30 - 45	0.015-0.025	0.025-0.035	0.035-0.045	0.045-0.055	$1xd_1$-$4xd_1$	$1xd_1$-$2xd_1$
22	30 - 45	0.015-0.025	0.025-0.035	0.035-0.045	0.045-0.055	$1xd_1$-4xd1	$1xd_1$-$2xd_1$
23	35 - 50	0.02-0.025	0.025-0.035	0.04-0.05	0.05-0.065	$1xd_1$-$4xd_1$	$1xd_1$-$2xd_1$
24	35 - 50	0.02-0.025	0.025-0.035	0.04-0.05	0.05-0.065	$1xd_1$-$4xd_1$	$1xd_1$-$2xd_1$
31	50 - 80	0.025-0.045	0.045-0.065	0.065-0.085	0.085-0.10	$4xd_1$-$8xd_1$	$4xd_1$
32	40 - 70	0.025-0.045	0.045-0.065	0.065-0.085	0.085-0.10	$4xd_1$-$8xd_1$	$4xd_1$
41	15 - 25	0.005-0.02	0.015-0.045	0.04-0.06	0.055-0.07	$1/2xd_1$-$1xd_1$	$1/4xd_1$-$1/2xd_1$
42	15 - 25	0.005-0.02	0.015-0.045	0.04-0.06	0.055-0.07	$1/2xd_1$-$1xd_1$	$1/4xd_1$-$1/2xd_1$
51	15 - 25	0.005-0.02	0.02-0.025	0.025-0.035	0.035-0.05	$1/2xd_1$-$1xd_1$	$1/2xd_1$
52	15 - 25	0.015-0.02	0.02-0.025	0.025-0.035	0.035-0.05	$1/2xd_1$-$1xd_1$	$1/2xd_1$
53	15 - 25	0.005-0.01	0.01-0.02	0.02-0.03	0.03-0.04	$1/2xd_1$-$1xd_1$	$1/2xd_1$
61	50 - 80	0.05-0.08	0.06-0.10	0.08-0.12	0.12-0.15	$4xd_1$-$8xd_1$	$4xd_1$
62	50 - 80	0.05-0.08	0.06-0.10	0.08-0.12	0.12-0.15	$4xd_1$-$8xd_1$	$4xd_1$
63	50 - 80	0.05-0.08	0.06-0.10	0.08-0.12	0.12-0.15	$4xd_1$-$8xd_1$	$4xd_1$
64	50 - 80	0.05-0.08	0.06-0.10	0.08-0.12	0.12-0.15	$4xd_1$-$8xd_1$	$4xd_1$
71	50 - 80	0.05-0.08	0.06-0.10	0.08-0.12	0.12-0.15	$2xd_1$-$3xd_1$	$3xd_1$
72	50 - 80	0.05-0.08	0.06-0.10	0.08-0.12	0.12-0.15	$2xd_1$-$3xd_1$	$3xd_1$
73	50 - 80	0.05-0.08	0.06-0.10	0.08-0.12	0.12-0.15	$2xd_1$-$3xd_1$	$3xd_1$
74	50 - 80	0.05-0.08	0.06-0.10	0.08-0.12	0.12-0.15	$2xd_1$-$3xd_1$	$3xd_1$
81	50 - 80	0.05-0.08	0.06-0.10	0.08-0.12	0.12-0.15	$4xd_1$-$8xd_1$	$4xd_1$
82	50 - 80	0.05-0.08	0.06-0.10	0.08-0.12	0.12-0.15	$4xd_1$-$8xd_1$	$4xd_1$
83	40 - 60	0.02-0.035	0.03-0.045	0.04-0.055	0.05-0.065	$2xd_1$-$3xd_1$	$3xd_1$
91	50 - 80	0.02-0.035	0.03-0.045	0.04-0.055	0.05-0.065	$2xd_1$-$3xd_1$	$3xd_1$
92	50 - 80	0.02-0.035	0.03-0.045	0.04-0.055	0.05-0.065	$2xd_1$-$3xd_1$	$3xd_1$
93	40 - 60	0.02-0.035	0.03-0.045	0.04-0.055	0.05-0.065	$2xd_1$-$3xd_1$	$3xd_1$
94	40 - 60	0.02-0.035	0.03-0.045	0.04-0.055	0.05-0.065	$2xd_1$-$3xd_1$	$3xd_1$

A Optimal with air

A Suitable with air

The indicated values are a guideline.

				TAN				TAZ	
Characteristics				L20	L20 VS	R25	R25 VS	L20	L20 VS
									
Hole type									
				TAN40	TAN40VS	TAN50	TAN50VS	TAZ40	TAZ40VS
M	**4H / 6H**	**ISO DIN 14 ISO DIN 13**	**DC ~DIN 371**	76	76	76	76	77	77
MF	**4H / 6H**	**ISO DIN 13**	**DC ~DIN 371**	79	79	79	79	80	80
UNC	**2B**	**ASME B1.1**	**DC ~DIN 371**	82	82	82	82	83	83
	3B	**ASME B1.1**	**DC ~DIN 371**	82	82	82	82	83	83
UNF	**2B**	**ASME B1.1**	**DC ~DIN 371**	85	85	85	85	86	86
	3B	**ASME B1.1**	**DC ~DIN 371**	85	85	85	85	86	86
S	**NIHS**	**NIHS 06-10**	**DC**	88	88	88	88	89	89
SF	**NIHS**	**NIHS 06-10 Fine Thread**	**DC**	91	91	91	91	92	92
SL	**Safelock**	**SL 15-01**	**DC**	94	94	94	94	95	95

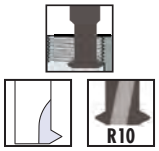
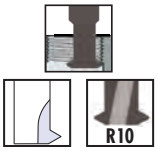
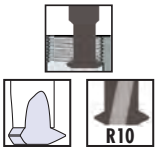
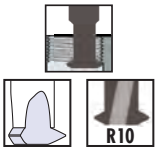
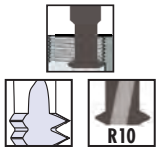
TAZ		CMS	
R25	R25 VS	R12	R12 VS
			
			
TAZ50	**TAZ50VS**	**CMS50**	**CMS50VS**
77	77	78	78
80	80	81	81
83	83	84	84
83	83	84	84
86	86	87	87
86	86	87	87
89	89	90	90
92	92	93	93
95	95	96	96

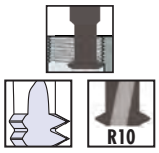
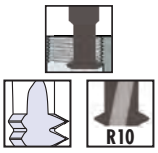
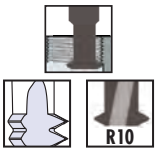
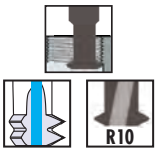
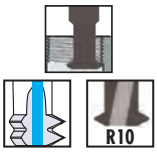
				FA		CFA	
Characteristics				VS E 1.5 x P	VS C 2.5 x P	VS E 1.5 x P	VS C 2.5 x P
							
Hole type				< 2.5 x D	< 2.5 x D	< 2.5 x D	< 2.5 x D
				FA80VS	**FA83VS**	**CFA80VS**	**CFA83VS**
M	**4HX / 6HX**	**ISO DIN 14 ISO DIN 13**	**DC ~DIN 371**	98	98	105	105
MF	**4HX / 6HX**	**ISO DIN 13**	**DC ~DIN 371**	99	99		
UNC	**2BX**	**ASME B1.1**	**DC ~DIN 371**	100	100	106	106
	3BX	**ASME B1.1**	**DC ~DIN 371**	100	100		
UNF	**2BX**	**ASME B1.1**	**DC ~DIN 371**	101	101	107	107
	3BX	**ASME B1.1**	**DC ~DIN 371**	101	101		
S	**NIHS**	**NIHS 06-10**	**DC**	102	102	108	108
SF	**NIHS**	**NIHS 06-10 Fine Thread**	**DC**	103	103		
SL	**Safelock**	**SL 15-01**	**DC**	104	104		

DC®

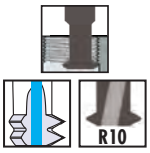
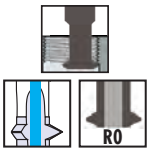
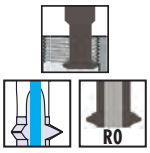
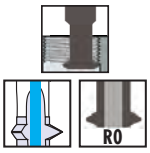
THREADING SOLUTIONS

NANO FA | AMAZING FORMING

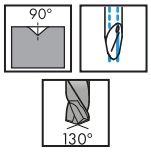
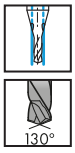
	GW								
Type	GW1115	GW1115VS	GW1116	GW1116VS	GW2015	GW2015VS	GW2016	GW2016VS	GW3015	GW3015VS	GW3015VX
Coating		VS		VS		VS		VS		VS	VX
	 NEW NEW				 NEW NEW				 NEW NEW NEW		
Thread length	 2 x D_1		 2.5 x D_1		 2 x D_1		 2.5 x D_1		 2 x D_1		
Characteristics	 R10		 R10		 R10		 R10		 R10		
M ISO DIN 14 ISO DIN 13	112		113		118		119		124		
MF ISO DIN 13									128		
UNC ASME B1.1									132		
UNF ASME B1.1									136		
S NIHS 06-10	114		115		120		121		140		
SL SL 15-01	116		117		122		123		140		

	GW - GWi									
Type	GW3016	GW3016VS	GW3016VX	GW3017	GW3017VS	GW3017VX	GW3019	GW3019VS	GWi3065VS	GWi3065VX	GWi3066VS	GWi3066VX
Coating		VS	VX		VS	VX		VS	VS	VX	VS	VX
									 NEW NEW			
Thread length	 2.5 x D_1			 3 x D_1			 4 x D_1		 2 x D_1		 2.5 x D_1	
Characteristics	 R10			 R10			 R10		 R10		 R10	
M ISO DIN 14 ISO DIN 13	125			126			127		144		145	
MF ISO DIN 13	129			130			131		147		147	
UNC ASME B1.1	133			134			135		149		149	
UNF ASME B1.1	137			138			139		150		150	
S NIHS 06-10	141			142			143		151		152	
SL SL 15-01	141											

Directory — Solid carbide thread whirl cutters type GWi

		GWi				
Type		GWi3067VS	GWi3067VX	GWi5065VS	GWi5066VS	GWi5067VS
Coating		VS	VX	VS	VS	VS
				 NEW		
Thread length		 3 x D_1		 2 x D_1	 2.5 x D_1	 3 x D_1
Characteristics		 R10		 R0	 R0	 R0
M	ISO DIN 14 ISO DIN 13	146		153	154	154
MF	ISO DIN 13	148				
UNC	ASME B1.1					
UNF	ASME B1.1					
S	NIHS 06-10	152		155	155	
SL	SL 15-01					

Directory — Solid carbide spotting drills type C, solid carbide twist drills type FZ

	C	FZ
Type	**C315VS**	**FZ315VS**
Coating	VS	VS
		
Drilling depth		
Characteristics		
C315VS	156	
FZ315VS		157

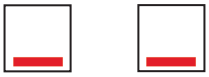
Directory — Thread gauges nano for micromechanics and watchmaking

Characteristics		Thread plug gauges						
					 NEW	 NEW	 NEW	 NEW
Type		**DN01 Go**	**DN01 Go**	**DN02 NoGo**	**DN5701-1 Go**	**DN5701-1 Go**	**DN5701-2 NoGo**	**DH5701-1 Go**
M 4H	**ISO DIN 14 ISO DIN 13**		160	160				
M 6H	**ISO DIN 13**		160	160				
M 5H	**ISO DIN 13**		160	160				
MF 4H	**ISO DIN 13**		163	163				
MF 6H	**ISO DIN 13**		163	163				
UNC 2B	**ASME B1.1**		168	168				
UNC 3B	**ASME B1.1**		168	168				
UNF 2B	**ASME B1.1**		168	168				
UNF 3B	**ASME B1.1**		168	168				
S NIHS 3G	**NIHS 06-12**	171			173			175
S NIHS 4H	**NIHS 06-12**		171			173		
S NIHS 4H/3G	**NIHS 06-12**			171			173	
S NIHS 3G LH	**NIHS 06-12**	172			174			
S NIHS 4H LH	**NIHS 06-12**		172			174		
S NIHS 4H/3G LH	**NIHS 06-12**			172			174	
S NIHS 3G	**NIHS**	176						
S NIHS 4H	**NIHS**		176					
S NIHS 4H/3G	**NIHS**			176				
S NIHS NT	**NIHS**		177	177				
SF NIHS 3G	**NIHS 06-12**	185						
SF NIHS 4H	**NIHS 06-12**		185					
SF NIHS 4H/3G	**NIHS 06-12**			185				
SF NIHS 3G	**NIHS**	186						
SF NIHS 4H	**NIHS**		186					
SF NIHS 4H/3G	**NIHS**			186				
SL	**SL 15-01**		191	191				

Directory — Thread gauges nano for micromechanics and watchmaking

Characteristics		Thread ring gauges						Plug check gauges	
									
Type		**DZ04 Go**	**DZ04 Go**	**DZ14 NoGo**	**DN04 Go**	**DN04 Go**	**DN14 NoGo**	**RN05-1 Go/Go**	**RN15-1 NoGo/Go**
M 5h	**ISO DIN 14 ISO DIN 13**		161	161		162	162	192	192
M 6g	**ISO DIN 13**		161	161		162	162	192	192
M 6h	**ISO DIN 13**		161	161		162	162	192	192
MF 4h	**ISO DIN 13**		164	164		166	166	195	195
MF 6g	**ISO DIN 13**		165	165		167	167	196	196
MF 6h	**ISO DIN 13**		164	164		166	166	195	195
UNC 2A	**ASME B1.1**		169	169		170	170	201	201
UNC 3A	**ASME B1.1**		169	169		170	170	201	201
UNF 2A	**ASME B1.1**		169	169		170	170	201	201
UNF 3A	**ASME B1.1**		169	169		170	170	201	201
S NIHS 4g	**NIHS 06-12**	178			181			203	
S NIHS 5h	**NIHS 06-12**		178			181		203	
S NIHS 5h/4g	**NIHS 06-12**			178			181		203
S NIHS 4g LH	**NIHS 06-12**	179			182			204	
S NIHS 5h LH	**NIHS 06-12**		179			182		204	
S NIHS 5h/4g LH	**NIHS 06-12**			179			182		204
S NIHS	**NIHS**		180	180		183	183	205	205
S NIHS NT	**NIHS**		180	180		183	183	205	205
SF NIHS 5h	**NIHS 06-12**		187			189		209	
SF NIHS 5h/4g	**NIHS 06-12**			187			189		209
SF NIHS	**NIHS**		188	188		190	190	210	210
SF NIHS NT	**NIHS**							210	210

Directory — Thread gauges nano for micromechanics and watchmaking

		Plug check gauges		Master plug gauges WEAR		Calibration thread plug gauges
Characteristics						
						
Type		**RN05-2 Go/NoGo**	**RN15-2 NoGo/NoGo**	**RN05-3 WEAR**	**RN15-3 WEAR**	**EN00**
M 5h	ISO DIN 14 ISO DIN 13	193	193			
M 6g	ISO DIN 13	193	193	194	194	
M 6h	ISO DIN 13	193	193	194	194	
MF 4h	ISO DIN 13	197	197	199	199	
MF 6g	ISO DIN 13	198	198	200	200	
MF 6h	ISO DIN 13	197	197	199	199	
UNC 2A	ASME B1.1	202	202			
UNC 3A	ASME B1.1	202	202			
UNF 2A	ASME B1.1	202	202			
UNF 3A	ASME B1.1	202	202			
S NIHS 4g	NIHS 06-12	206				
S NIHS 5h	NIHS 06-12	206				
S NIHS 5h/4g	NIHS 06-12		206			
S NIHS 4g LH	NIHS 06-12	207				
S NIHS 5h LH	NIHS 06-12	207				
S NIHS 5h/4g LH	NIHS 06-12		207			
S NIHS	NIHS	208	208			184
S NIHS NT	NIHS	208	208			
SF NIHS 5h	NIHS 06-12	211				
SF NIHS 5h/4g	NIHS 06-12		211			
SF NIHS	NIHS	212	212			
SF NIHS NT	NIHS	212	212			


TAN
TAZ
FA/CFA
CMS

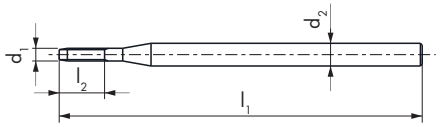
M ISO DIN 13 ISO DIN 14

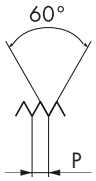
CLASSIC SYNCHRO | PM | DC – DIN 371

TAN

TAN40	L20		62 63 91
TAN40VS	L20	VS	11 12 13 14 32 62 63 71 72 73 74 81 93
TAN50	R25		62 63 91
TAN50VS	R25	VS	11 12 13 14 32 62 63 71 72 73 74 81 93

TAN40	TAN40VS	TAN50	TAN50VS
			
<2 x D	<2 x D	<2 x D	<2 x D
C 2 x P	C 2 x P	C 2 x P	C 2 x P
4H	4H	4H	4H

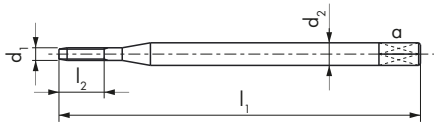


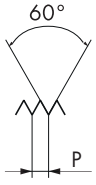


Ø d_1 M	P mm	l_1 mm	l_2 mm	d_2 mm			TAN40 ID	TAN40VS ID	TAN50 ID	TAN50VS ID
0.5	0.125	25	1.5	2	3	Δ0.41	161817	161748	161818	161749
0.6	0.15	25	1.8	2	3	Δ0.5	152512	152511	152545	151766
0.7	0.175	25	2.1	2	3	Δ0.58	152516	152515	152548	152547
0.8	0.2	25	2.4	2	3	Δ0.66	152520	152519	152552	152551
0.9	0.225	25	2.7	2	3	Δ0.74	152524	152523	152555	152554
1	0.25	40	3.0	2.5	3	0.75	152528	152527	152558	151557
1.2	0.25	40	3.6	2.5	3	0.95	152531	151463	152562	152561
1.4	0.3	40	4.2	2.5	3	1.1	152534	151756	152565	151757

Δ 4H5H → 4H6H = +0.02 mm

≥ M1 - ≤ M1.4 ISO 1 4H





ISO 2 6H

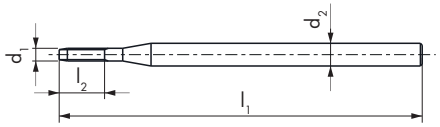
Ø d_1 M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			TAN40 ID	TAN40VS ID	TAN50 ID	TAN50VS ID
1.6	0.35	40	4.8	2.5		3	1.25	152538	152537	152569	152568
1.8	0.35	40	5.4	2.5		3	1.45	193841	151461	193915	193952
2	0.4	45	8	2.8	2.1	3	1.6	152542	152541	152573	152572
2.3	0.4	45	9	2.8	2.1	3	1.9	193842	193878	193916	193953
2.5	0.45	50	10	2.8	2.1	3	2.05	193843	193879	193917	193954
2.6	0.45	50	10	2.8	2.1	3	2.15	193844	193880	193918	193955

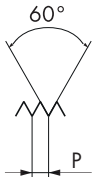
M ISO DIN 13 ISO DIN 14

CLASSIC | SYNCHRO | PM | DC – DIN 371

TAZ

	TAZ40	TAZ40VS	TAZ50	TAZ50VS
	L20	L20 VS	R25	R25 VS
		21 22 23 41 42 61 64		21 22 23 41 42 61 64



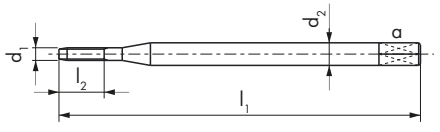


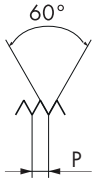
	D 4 x P	D 4 x P	C 2 x P	C 2 x P
	4H	4H	4H	4H

Ø d_1 M	P mm	l_1 mm	l_2 mm	d_2 mm		Δ SWC	TAZ40 ID	TAZ40VS ID	TAZ50 ID	TAZ50VS ID
0.5	0.125	25	1.5	2	3	Δ0.41	193994	194059	194119	194182
0.6	0.15	25	1.8	2	3	Δ0.5	193995	194060	194120	194183
0.7	0.175	25	2.1	2	3	Δ0.58	193996	194061	194121	194184
0.8	0.2	25	2.4	2	3	Δ0.66	193997	194062	194122	194185
0.9	0.225	25	2.7	2	3	Δ0.74	193998	194063	194123	194186
1	0.25	40	3	2.5	3	0.75	193999	194064	194124	183753
1.2	0.25	40	3.6	2.5	3	0.95	194000	194065	194125	194187
1.4	0.3	40	4.2	2.5	3	1.1	194001	194066	194126	194188

Δ SWC 4H5H → 4H6H = +0.02 mm

≥ M1 - ≤ M1.4 ISO 1 4H





	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H

Ø d_1 M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		SWC	TAZ40 ID	TAZ40VS ID	TAZ50 ID	TAZ50VS ID
1.6	0.35	40	4.8	2.5		3	1.25	194002	194067	194127	194189
1.8	0.35	40	5.4	2.5		3	1.45	194003	194068	194128	194190
2	0.4	45	8	2.8	2.1	3	1.6	194004	194947	194129	179266
2.3	0.4	45	9	2.8	2.1	3	1.9	194005	194069	194130	194191
2.5	0.45	50	10	2.8	2.1	3	2.05	194006	194070	194131	194192
2.6	0.45	50	10	2.8	2.1	3	2.15	194007	194071	194132	194193

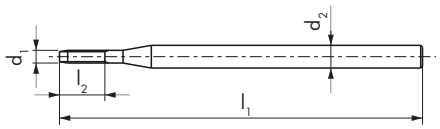
M ISO DIN 13 ISO DIN 14

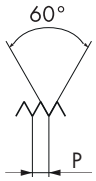
CLASSIC SYNCHRO VHM CAR DC

CMS

CMS50	R12		62 63 93
CMS50VS	R12 VS		31 62 63 73 74 83 93

CMS50	CMS50VS		
			
<3 x D	<3 x D		



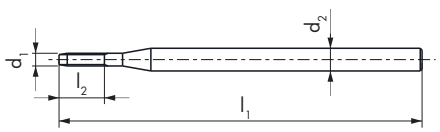


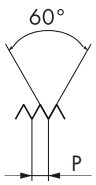
C 2.5 x P	C 2.5 x P		
4H	4H		

Ø d_1 M	P mm	l_1 mm	l_2 mm	d_2 h5 mm			ID	ID
0.3	0.08	32	1.1	1.5	3	0.23	● 193639	● 193702
0.35	0.09	32	1.3	1.5	3	0.28	● 193640	● 193703
0.4	0.1	32	1.5	1.5	3	Δ0.32	● 193641	● 193704
0.5	0.125	32	1.8	1.5	3	Δ0.41	● 193642	● 193705
0.6	0.15	32	2.2	1.5	3	Δ0.5	● 193643	● 193706
0.7	0.175	32	2.6	1.5	3	Δ0.58	● 193644	● 193707
0.8	0.2	32	3	1.5	3	Δ0.66	● 193645	● 193708
0.9	0.225	32	3.3	1.5	3	Δ0.74	● 193646	● 193709
1	0.25	32	3.7	2	3	0.75	● 193647	● 193710
1.2	0.25	32	4.5	2	3	0.95	● 193648	● 193711
1.4	0.3	32	5.2	2	3	1.1	● 193649	● 193712

Δ 4H5H → 4H6H = +0.02 mm

≥ M1 - ≤ M1.4 ISO 1 4H





ISO 2 6H	ISO 2 6H		

Ø d_1 M	P mm	l_1 mm	l_2 mm	d_2 h5 mm			ID	ID
1.6	0.35	32	6	2	3	1.25	● 193650	● 193713
1.8	0.35	32	6.7	2	3	1.45	● 193651	● 193714
2	0.4	39	7.5	3	3	1.6	● 193652	● 193715
2.3	0.4	39	8.6	3	3	1.9	● 193653	● 193716
2.5	0.45	39	9.3	3	3	2.05	● 193654	● 193717
2.6	0.45	39	9.7	3	3	2.15	● 193655	● 193718

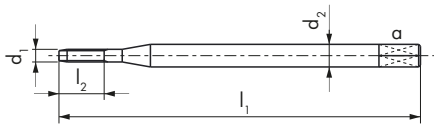
MF ISO DIN 13

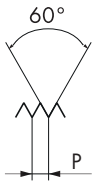
CLASSIC SYNCHRO | PM | DC – DIN 371

TAN

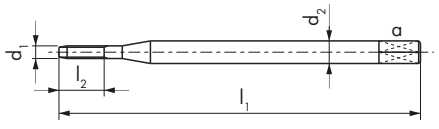
TAN40	L20		62 63 91
TAN40VS	L20	VS	11 12 13 14 32 62 63 71 72 73 74 81 93
TAN50	R25		62 63 91
TAN50VS	R25	VS	11 12 13 14 32 62 63 71 72 73 74 81 93

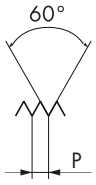
TAN40	TAN40VS	TAN50	TAN50VS
			
<2 x D	<2 x D	<2 x D	<2 x D
C 2 x P	C 2 x P	C 2 x P	C 2 x P
ISO 1 4H	ISO 1 4H	ISO 1 4H	ISO 1 4H





Ø d_1 MF	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
1.4	0.2	40	4.2	2.5		3	1.2	170390	193881	170393	156730
1.6	0.2	40	4.8	2.5		3	1.4	193845	193882	193919	193956
1.8	0.2	40	5.4	2.5		3	1.6	193846	193883	193920	180810
2	0.2	45	6	2.8	2.1	3	1.8	193847	193884	193921	184999
2	0.25	45	6	2.8	2.1	3	1.75	193848	193885	193922	182944
2.2	0.2	45	6.6	2.8	2.1	3	2	193849	193886	193923	179593
2.2	0.25	45	6.6	2.8	2.1	3	1.95	193850	193887	193924	193957
2.3	0.2	45	6.9	2.8	2.1	3	2.1	193851	193888	193925	193958
2.3	0.25	45	6.9	2.8	2.1	3	2.05	193852	193889	193926	193959
2.5	0.2	50	7.5	2.8	2.1	3	2.3	193853	193890	193927	193960
2.5	0.25	50	7.5	2.8	2.1	3	2.25	193854	193891	193928	193961





ISO 2 6H | ISO 2 6H | ISO 2 6H | ISO 2 6H

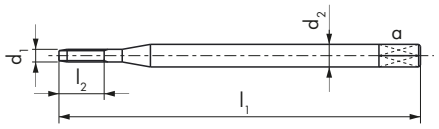
Ø d_1 MF	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
2.5	0.35	50	7.5	2.8	2.1	3	2.15	193855	193892	193929	193962
2.6	0.35	50	7.8	2.8	2.1	3	2.25	193856	193893	193930	193963

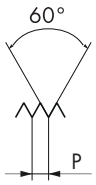
MF ISO DIN 13

CLASSIC SYNCHRO | PM | DC – DIN 371

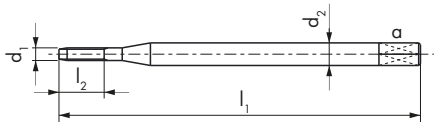
TAZ

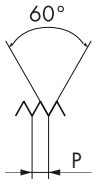
	TAZ40	TAZ40VS	TAZ50	TAZ50VS
	L20	L20 VS	R25	R25 VS
		21 22 23 41 42 61 64		21 22 23 41 42 61 64





						D 4 x P	D 4 x P	C 2 x P	C 2 x P
						ISO 1 4H	ISO 1 4H	ISO 1 4H	ISO 1 4H
Ø d_1 MF	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
1.4	0.2	40	4.2	2.5		3	1.2	194008	194950	194133	194194
1.6	0.2	40	4.8	2.5		3	1.4	194009	194072	194134	181665
1.8	0.2	40	5.4	2.5		3	1.6	194010	194073	194135	190047
2	0.2	45	6	2.8	2.1	3	1.8	194011	194949	194136	194195
2	0.25	45	6	2.8	2.1	3	1.75	194012	194948	194137	185307
2.2	0.2	45	6.6	2.8	2.1	3	2	194013	194074	194138	194196
2.2	0.25	45	6.6	2.8	2.1	3	1.95	194014	194075	194139	194197
2.3	0.2	45	6.9	2.8	2.1	3	2.1	194015	194076	194140	194198
2.3	0.25	45	6.9	2.8	2.1	3	2.05	194016	194077	194141	194199
2.5	0.2	50	7.5	2.8	2.1	3	2.3	194017	194078	194142	194200
2.5	0.25	50	7.5	2.8	2.1	3	2.25	194018	194951	194143	194201





						ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
Ø d_1 MF	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
2.5	0.35	50	7.5	2.8	2.1	3	2.15	194019	194079	194144	194202
2.6	0.35	50	7.8	2.8	2.1	3	2.25	194020	194080	194145	194203

MF ISO DIN 13

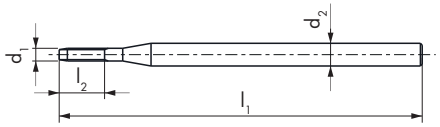
CLASSIC | SYNCHRO | VHM CAR | DC

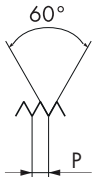
CMS

	CMS50	CMS50VS		
				
	<3 x D	<3 x D		

CMS50 — R12 — 62 / 63 / 93

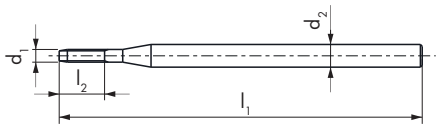
CMS50VS — R12 — VS — 31 / 62 / 63 / 73 / 74 / 83 / 93

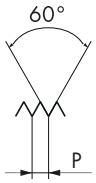




	CMS50	CMS50VS		
	C 2.5 x P	C 2.5 x P		
	ISO 1 4H	ISO 1 4H		

Ø d_1 MF	P mm	l_1 mm	l_2 mm	d_2 h5 mm			ID	ID
1.4	0.2	32	5.2	2	3	1.2	● 193656	● 193719
1.6	0.2	32	6	2	3	1.4	● 193657	● 193720
1.8	0.2	32	6.7	2	3	1.6	● 193658	● 193721
2	0.2	39	7.5	3	3	1.8	● 193659	● 193722
2	0.25	39	7.5	3	3	1.75	● 193660	● 193723
2.2	0.2	39	8.2	3	3	2	● 193661	● 193724
2.2	0.25	39	8.2	3	3	1.95	● 193662	● 193725
2.3	0.2	39	8.6	3	3	2.1	● 193663	● 193726
2.3	0.25	39	8.6	3	3	2.05	● 193664	● 193727
2.5	0.2	39	9.3	3	3	2.3	● 193665	● 193728
2.5	0.25	39	9.3	3	3	2.25	● 193666	● 193729





	CMS50	CMS50VS		
	ISO 2 6H	ISO 2 6H		

Ø d_1 MF	P mm	l_1 mm	l_2 mm	d_2 h5 mm			ID	ID
2.5	0.35	39	9.3	3	3	2.15	● 193667	● 193730
2.6	0.35	39	9.7	3	3	2.25	● 193668	● 193731

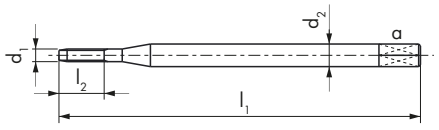
UNC ASME B1.1

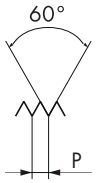
CLASSIC SYNCHRO | PM | DC – DIN 371

TAN

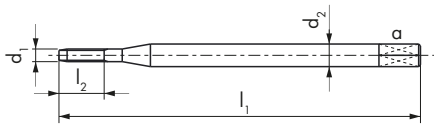
TAN40	L20		62 63 91
TAN40VS	L20	VS	11 12 13 14 32 62 63 71 72 73 74 81 93
TAN50	R25		62 63 91
TAN50VS	R25	VS	11 12 13 14 32 62 63 71 72 73 74 81 93

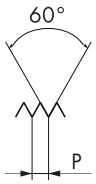
TAN40	TAN40VS	TAN50	TAN50VS
			
<2 x D	<2 x D	<2 x D	<2 x D
C 2 x P	C 2 x P	C 2 x P	C 2 x P
2B	2B	2B	2B





Ø d_1 UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
1	64	1.85	40	5.6	2.5		3	1.45	● 193857	● 193894	● 193931	● 193964
2	56	2.18	45	9	2.8	2.1	3	1.75	● 193858	● 193895	● 193932	● 193965
3	48	2.51	50	10	2.8	2.1	3	2	● 193859	● 193896	● 193933	● 193966





3B	3B	3B	3B

Ø d_1 UNC(J)	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
1	64	1.85	40	5.6	2.5		3	1.45	● 193860	● 193897	● 193934	● 193967
2	56	2.18	45	9	2.8	2.1	3	1.75	● 193861	● 193898	● 193935	● 193968
3	48	2.51	50	10	2.8	2.1	3	2	● 193862	● 193899	● 193936	● 193969

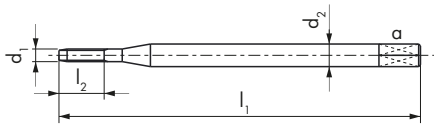
UNC ASME B1.1

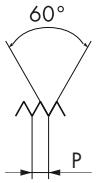
CLASSIC SYNCHRO | PM | DC – DIN 371

TAZ

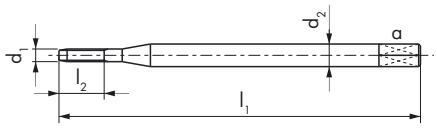
TAZ40	L20		
TAZ40VS	L20	VS	21 22 23 41 42 61 64
TAZ50	R25		
TAZ50VS	R25	VS	21 22 23 41 42 61 64

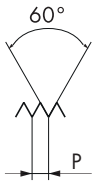
TAZ40	TAZ40VS	TAZ50	TAZ50VS
			
<2xD	<2xD	<2xD	<2xD
D 4xP	D 4xP	C 2xP	C 2xP
2B	2B	2B	2B





Ø d_1 UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
1	64	1.85	40	5.6	2.5		3	1.45	194021	194081	194146	194204
2	56	2.18	45	9	2.8	2.1	3	1.75	194022	194082	194147	194205
3	48	2.51	50	10	2.8	2.1	3	2	194023	194083	194148	194206





									3B	3B	3B	3B
Ø d_1 UNC(J)	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
1	64	1.85	40	5.6	2.5		3	1.45	194024	194084	194149	194207
2	56	2.18	45	9	2.8	2.1	3	1.75	194025	194085	194150	194208
3	48	2.51	50	10	2.8	2.1	3	2	194026	194086	194151	194209

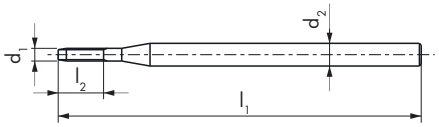
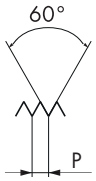
UNC ASME B1.1

CLASSIC SYNCHRO

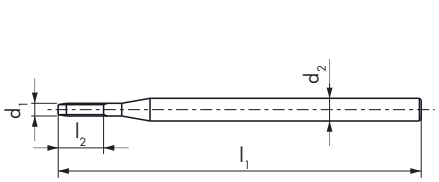
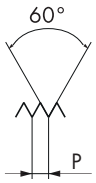
VHM CAR

DC

CMS

	CMS50	CMS50VS
		
	 <3 x D	 <3 x D
	 	C 2.5 x P 2B
	C 2.5 x P 2B	

Ø d_1 UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 h5 mm			ID	ID
1	64	1.85	32	6.9	2	3	1.45	● 193669	● 193732
2	56	2.18	39	8.1	3	3	1.75	● 193670	● 193733
3	48	2.51	39	9.4	3	3	2	● 193671	● 193734

3B | 3B

Ø d_1 UNC(J)	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 h5 mm			ID	ID
1	64	1.85	32	6.9	2	3	1.45	● 193672	● 193735
2	56	2.18	39	8.1	3	3	1.75	● 193673	● 193736
3	48	2.51	39	9.4	3	3	2	● 193674	● 193737

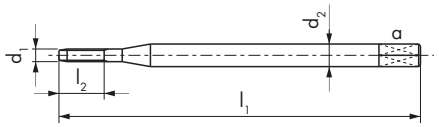
UNF ASME B1.1

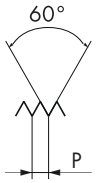
CLASSIC | SYNCHRO | PM | DC – DIN 371

TAN

TAN40	L20		62 63 91
TAN40VS	L20	VS	11 12 13 14 32 62 63 71 72 73 74 81 93
TAN50	R25		62 63 91
TAN50VS	R25	VS	11 12 13 14 32 62 63 71 72 73 74 81 93

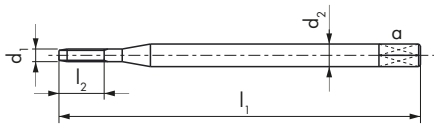
TAN40	TAN40VS	TAN50	TAN50VS
			
<2 x D	<2 x D	<2 x D	<2 x D

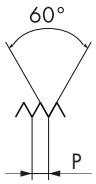




C 2xP	C 2xP	C 2xP	C 2xP
2B	2B	2B	2B

Ø d_1 UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
0	80	1.52	40	4.6	2.5		3	1.2	● 193863	● 193900	● 193937	● 193970
1	72	1.85	40	5.6	2.5		3	1.5	● 193864	● 193901	● 193938	● 193971
2	64	2.18	45	9	2.8	2.1	3	1.8	● 193865	● 193902	● 193939	● 193972
3	56	2.51	50	10	2.8	2.1	3	2.1	● 193866	● 193903	● 193940	● 193973





3B	3B	3B	3B

Ø d_1 UNF(J)	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
0	80	1.52	40	4.6	2.5		3	1.2	● 193867	● 193904	● 193941	● 193974
1	72	1.85	40	5.6	2.5		3	1.5	● 193868	● 193905	● 193942	● 193975
2	64	2.18	45	9	2.8	2.1	3	1.8	● 193869	● 193906	● 193943	● 193976
3	56	2.51	50	10	2.8	2.1	3	2.1	● 193870	● 193907	● 193944	● 193977

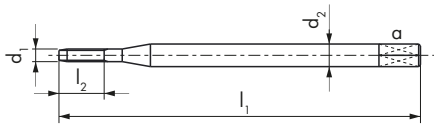
UNF ASME B1.1

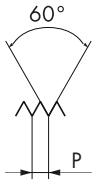
CLASSIC | SYNCHRO | PM | DC – DIN 371

TAZ

TAZ40	L20		
TAZ40VS	L20	VS	21 22 23 41 42 61 64
TAZ50	R25		
TAZ50VS	R25	VS	21 22 23 41 42 61 64

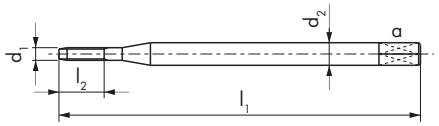
TAZ40	TAZ40VS	TAZ50	TAZ50VS
			
<2 x D	<2 x D	<2 x D	<2 x D

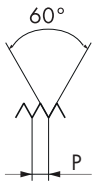




D 4 x P	D 4 x P	C 2 x P	C 2 x P
2B	2B	2B	2B

Ø d_1 UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			TAZ40 ID	TAZ40VS ID	TAZ50 ID	TAZ50VS ID
0	80	1.52	40	4.6	2.5		3	1.2	194027	194087	194152	194210
1	72	1.85	40	5.6	2.5		3	1.5	194028	194088	194153	194211
2	64	2.18	45	9	2.8	2.1	3	1.8	194029	194089	194154	194212
3	56	2.51	50	10	2.8	2.1	3	2.1	194030	194090	194155	194213





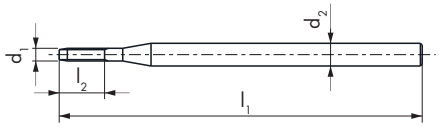
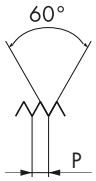
3B	3B	3B	3B

Ø d_1 UNF(J)	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			TAZ40 ID	TAZ40VS ID	TAZ50 ID	TAZ50VS ID
0	80	1.52	40	4.6	2.5		3	1.2	194031	194091	194156	194214
1	72	1.85	40	5.6	2.5		3	1.5	194032	194092	194157	194215
2	64	2.18	45	9	2.8	2.1	3	1.8	194033	194093	194158	194216
3	56	2.51	50	10	2.8	2.1	3	2.1	194034	194094	194159	194217

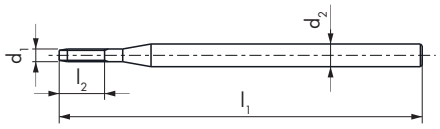
UNF ASME B1.1

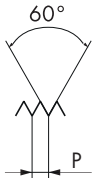
CLASSIC | SYNCHRO | VHM CAR | DC

CMS

	CMS50	CMS50VS		
				
				
	 	C 2.5 x P	C 2.5 x P	
		2B	2B	

Ø d_1 UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 h5 mm			ID	ID
0	80	1.52	32	5.7	2	3	1.2	● 193675	● 193738
1	72	1.85	32	6.9	2	3	1.5	● 193676	● 193739
2	64	2.18	39	8.1	3	3	1.8	● 193677	● 193740
3	56	2.51	39	9.4	3	3	2.1	● 193678	● 193741





3B | 3B

Ø d_1 UNF(J)	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 h5 mm			ID	ID
0	80	1.52	32	5.7	2	3	1.2	● 193679	● 193742
1	72	1.85	32	6.9	2	3	1.5	● 193680	● 193743
2	64	2.18	39	8.1	3	3	1.8	● 193681	● 193744
3	56	2.51	39	9.4	3	3	2.1	● 193682	● 193745

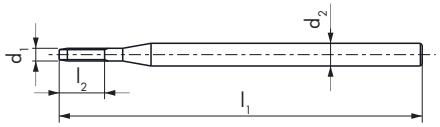
S NIHS 06-10

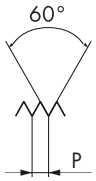
CLASSIC SYNCHRO PM DC

TAN

TAN40	L20		62 63 91
TAN40VS	L20	VS	11 12 13 14 32 62 63 71 72 73 74 81 93
TAN50	R25		62 63 91
TAN50VS	R25	VS	11 12 13 14 32 62 63 71 72 73 74 81 93

TAN40	TAN40VS	TAN50	TAN50VS
			
<2xD	<2xD	<2xD	<2xD
C 2xP	C 2xP	C 2xP	C 2xP
NIHS	NIHS	NIHS	NIHS





Ø d_1 S	P mm	l_1 mm	l_2 mm	d_2 mm			ID	ID	ID	ID
0.5	0.125	25	1.5	2	3	Δ0.41	161816	157021	159301	158384
0.6	0.15	25	1.8	2	3	Δ0.5	152510	152509	151567	152544
0.7	0.175	25	2.1	2	3	Δ0.58	152514	152513	151768	152546
0.8	0.2	25	2.4	2	3	Δ0.66	152518	152517	152550	152549
0.9	0.225	25	2.7	2	3	Δ0.74	152522	152521	152553	151563
1	0.25	40	3	2.5	3	Δ0.82	152526	152525	152557	152556
1.2	0.25	40	3.6	2.5	3	Δ1.02	152530	152529	152560	152559
1.4	0.3	40	4.2	2.5	3	Δ1.18	152533	152532	152564	152563

Δ 4H5H → 4H6H = +0.02 mm

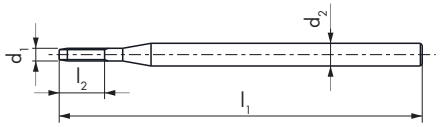
S NIHS 06-10

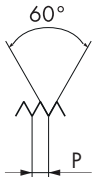
CLASSIC SYNCHRO PM DC

TAZ

TAZ40	L20		
TAZ40VS	L20	VS	21 22 23 41 42 61 64
TAZ50	R25		
TAZ50VS	R25	VS	21 22 23 41 42 61 64

TAZ40	TAZ40VS	TAZ50	TAZ50VS
			
<2xD	<2xD	<2xD	<2xD
D 4xP	D 4xP	C 2xP	C 2xP
NIHS	NIHS	NIHS	NIHS





Ø d_1 S	P mm	l_1 mm	l_2 mm	d_2 mm			ID	ID	ID	ID
0.5	0.125	25	1.5	2	3	Δ0.41	193978	194043	194103	194168
0.6	0.15	25	1.8	2	3	Δ0.5	193979	194044	194104	194169
0.7	0.175	25	2.1	2	3	Δ0.58	193980	194045	194105	194170
0.8	0.2	25	2.4	2	3	Δ0.66	193981	194046	194106	188515
0.9	0.225	25	2.7	2	3	Δ0.74	193982	194047	194107	188521
1	0.25	40	3	2.5	3	Δ0.82	193983	194048	194108	194171
1.2	0.25	40	3.6	2.5	3	Δ1.02	193984	194049	194109	194172
1.4	0.3	40	4.2	2.5	3	Δ1.18	193985	194050	194110	194173

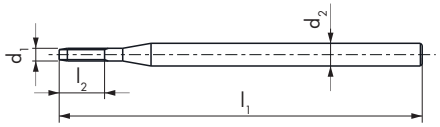
Δ 4H5H → 4H6H = +0.02 mm

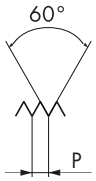
S NIHS 06-10

CLASSIC SYNCHRO VHM CAR DC

CMS

CMS50	R12		62 63 93
CMS50VS	R12 VS		31 62 63 73 74 83 93





Ø d_1 S	P mm	l_1 mm	l_2 mm	d_2 h5 mm			CMS50 ID	CMS50VS ID
0.3	0.08	32	1.1	1.5	3	0.23	178257	193683
0.35	0.09	32	1.3	1.5	3	0.28	178260	193684
0.4	0.1	32	1.5	1.5	3	Δ0.32	178263	193685
0.5	0.125	32	1.8	1.5	3	Δ0.41	178266	193686
0.6	0.15	32	2.2	1.5	3	Δ0.5	178269	193687
0.7	0.175	32	2.6	1.5	3	Δ0.58	178272	193688
0.8	0.2	32	3	1.5	3	Δ0.66	178275	193689
0.9	0.225	32	3.3	1.5	3	Δ0.74	178278	193690
1	0.25	32	3.7	2	3	Δ0.82	178281	193691
1.2	0.25	32	4.5	2	3	Δ1.02	178284	193692
1.4	0.3	32	5.2	2	3	Δ1.18	178287	193693

Δ 4H5H → 4H6H = +0.02 mm

SF

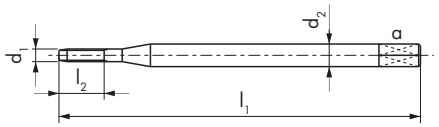
NIHS 06-10 Fine Thread

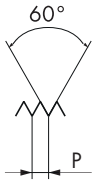
CLASSIC | SYNCHRO | PM | DC – DIN 371

TAN

TAN40	L20		62 63 91
TAN40VS	L20	VS	11 12 13 14 32 62 63 71 72 73 74 81 93
TAN50	R25		62 63 91
TAN50VS	R25	VS	11 12 13 14 32 62 63 71 72 73 74 81 93

TAN40	TAN40VS	TAN50	TAN50VS
			
<2xD	<2xD	<2xD	<2xD
C 2xP	C 2xP	C 2xP	C 2xP
NIHS	NIHS	NIHS	NIHS





Ø d_1 SF	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
1.4	0.2	40	4.2	2.5		3	Δ1.26	193833	170491	169767	170492
1.6	0.2	40	4.8	2.5		3	Δ1.46	193834	193871	193908	193945
1.8	0.2	40	5.4	2.5		3	Δ1.66	193835	193872	193909	193946
2	0.2	45	6	2.8	2.1	3	Δ1.86	193836	193873	193910	193947
2.2	0.2	45	6.6	2.8	2.1	3	Δ2.06	193837	193874	193911	193948
2.2	0.25	45	6.6	2.8	2.1	3	Δ2.02	193838	193875	193912	193949
2.5	0.2	50	7.5	2.8	2.1	3	Δ2.36	193839	193876	193913	193950
2.5	0.25	50	7.5	2.8	2.1	3	Δ2.32	193840	193877	193914	193951

Δ 4H5H → 4H6H = +0.02 mm

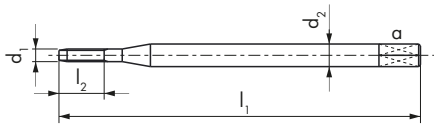
SF

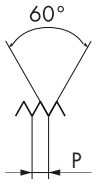
NIHS 06-10 Fine Thread

CLASSIC | SYNCHRO | PM | DC – DIN 371

TAZ

	TAZ40	TAZ40VS	TAZ50	TAZ50VS
	L20	L20 + VS	R25	R25 + VS
Coolant		21 22 23 41 42 61 64		21 22 23 41 42 61 64





Ø d_1 SF	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			TAZ40 ID	TAZ40VS ID	TAZ50 ID	TAZ50VS ID
1.4	0.2	40	4.2	2.5		3	Δ1.26	193986	194051	194111	194174
1.6	0.2	40	4.8	2.5		3	Δ1.46	193987	194052	194112	194175
1.8	0.2	40	5.4	2.5		3	Δ1.66	193988	194053	194113	194176
2	0.2	45	6	2.8	2.1	3	Δ1.86	193989	194054	194114	194177
2.2	0.2	45	6.6	2.8	2.1	3	Δ2.06	193990	194055	194115	194178
2.2	0.25	45	6.6	2.8	2.1	3	Δ2.02	193991	194056	194116	194179
2.5	0.2	50	7.5	2.8	2.1	3	Δ2.36	193992	194057	194117	194180
2.5	0.25	50	7.5	2.8	2.1	3	Δ2.32	193993	194058	194118	194181

Δ 4H5H → 4H6H = +0.02 mm

SF

NIHS 06-10 Fine Thread

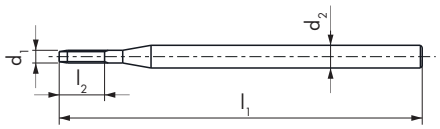
CLASSIC | SYNCHRO | VHM CAR | DC

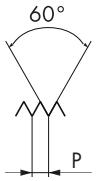
CMS

	CMS50	CMS50VS
		
	<3xD	<3xD
	C 2.5xP	C 2.5xP
	NIHS	NIHS

CMS50: R12 — 62 / 63 / 93

CMS50VS: R12 — VS — 31 / 62 / 63 / 73 / 74 / 83 / 93





Ø d_1 SF	P mm	l_1 mm	l_2 mm	d_2 h5 mm			ID	ID
1.4	0.2	32	5.2	2	3	Δ1.26	● 180329	● 193694
1.6	0.2	32	6	2	3	Δ1.46	● 193632	● 193695
1.8	0.2	32	6.7	2	3	Δ1.66	● 193633	● 193696
2	0.2	39	7.5	3	3	Δ1.86	● 193634	● 193697
2.2	0.2	39	8.2	3	3	Δ2.06	● 193635	● 193698
2.2	0.25	39	8.2	3	3	Δ2.02	● 193636	● 193699
2.5	0.2	39	9.3	3	3	Δ2.36	● 193637	● 193700
2.5	0.25	39	9.3	3	3	Δ2.32	● 193638	● 193701

Δ 4H5H → 4H6H = +0.02 mm

SL

SL 15-01

Micro Safelock®

CLASSIC | SYNCHRO

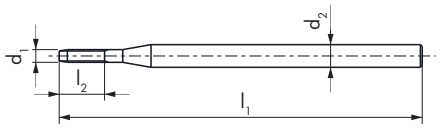
PM

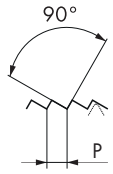
DC

TAN

TAN40	L20		62 63 91
TAN40VS	L20	VS	11 12 13 14 32 62 63 71 72 73 74 81 93
TAN50	R25		62 63 91
TAN50VS	R25	VS	11 12 13 14 32 62 63 71 72 73 74 81 93

TAN40	TAN40VS	TAN50	TAN50VS
			
			
			

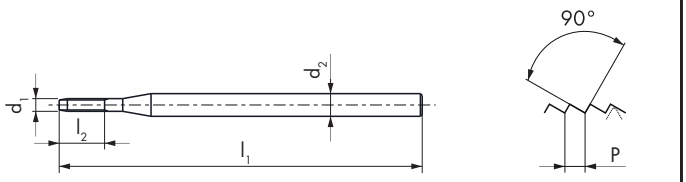




Ø d_1 SL	P mm	l_1 mm	l_2 mm	d_2 mm			ID	ID	ID	ID
0.5	0.1	25	1.5	2	3	0.46	600065	600073	600081	600089
0.6	0.125	25	1.8	2	3	0.55	600066	600074	600082	600090
0.7	0.15	25	2.1	2	3	0.64	600067	600075	600083	600091
0.8	0.15	25	2.4	2	3	0.74	600068	600076	600084	600092
0.9	0.175	25	2.7	2	3	0.83	600069	600077	600085	600093
1	0.2	40	3	2.5	3	0.92	600070	600078	600086	600094
1.2	0.2	40	3.6	2.5	3	1.12	600071	600079	600087	600095
1.4	0.25	40	4.2	2.5	3	1.3	600072	600080	600088	600096

TAZ

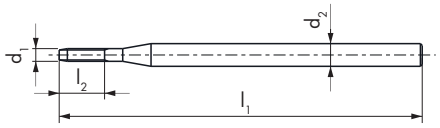
TAZ40	L20		
TAZ40VS	L20	VS	21 22 23 41 42 61 64
TAZ50	R25		
TAZ50VS	R25	VS	21 22 23 41 42 61 64



TAZ40	TAZ40VS	TAZ50	TAZ50VS
			
<2xD	<2xD	<2xD	<2xD
D 4xP	D 4xP	C 2xP	C 2xP

Ø d_1 SL	P mm	l_1 mm	l_2 mm	d_2 mm			ID	ID	ID	ID
0.5	0.1	25	1.5	2	3	0.46	600210	600218	600194	600202
0.6	0.125	25	1.8	2	3	0.55	600211	600219	600195	600203
0.7	0.15	25	2.1	2	3	0.64	600212	600220	600196	600204
0.8	0.15	25	2.4	2	3	0.74	600213	600221	600197	600205
0.9	0.175	25	2.7	2	3	0.83	600214	600222	600198	600206
1	0.2	40	3	2.5	3	0.92	600215	600223	600199	600207
1.2	0.2	40	3.6	2.5	3	1.12	600216	600224	600200	600208
1.4	0.25	40	4.2	2.5	3	1.3	600217	600225	600201	600209

CMS

	CMS50	CMS50VS		
				
				
				

CMS50 — R12 — 62 63 93

CMS50VS — R12 — VS — 31 62 63 73 74 83 93

Ø d_1 SL	P mm	l_1 mm	l_2 mm	d_2 h5 mm			CMS50 ID	CMS50VS ID
0.3	0.06	32	1.1	1.5	3	0.27	600097	600226
0.35	0.06	32	1.3	1.5	3	0.32	600098	600227
0.4	0.08	32	1.5	1.5	3	0.36	600099	600228
0.5	0.1	32	1.8	1.5	3	0.46	600039	600229
0.6	0.125	32	2.2	1.5	3	0.55	600040	600230
0.7	0.15	32	2.6	1.5	3	0.64	600041	600231
0.8	0.15	32	3	1.5	3	0.74	600042	600232
0.9	0.175	32	3.3	1.5	3	0.83	600043	600233
1	0.2	32	3.7	2	3	0.92	600044	600234
1.2	0.2	32	4.5	2	3	1.12	600045	600235
1.4	0.25	32	5.2	2	3	1.3	600046	600236

THREADING SOLUTIONS

FA80VS

M ISO DIN 13 ISO DIN 14

CLASSIC SYNCHRO | PM | DC – DIN 371

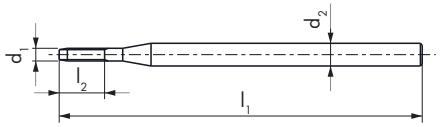
FA

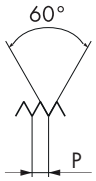
FA80VS — VS

FA83VS — VS

11 12 13 14 15
21 22 23 24 51
61 63 64 71 72
73 91 92 94

FA80VS	FA83VS		
			
 < 2.5 x D	 < 2.5 x D		



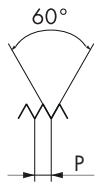


E 1.5 x P — 4HX

C 2.5 x P — 4HX

Ø d_1 M	P mm	l_1 mm	l_2 mm	d_2 mm		ID	ID
0.4	0.1	25	1.2	2	Δ 0.35	● 208016	● 208017
0.5	0.125	25	1.5	2	Δ 0.44	● 161750	● 173719
0.6	0.15	25	1.8	2	Δ 0.53	● 152412	● 173720
0.7	0.175	25	2.1	2	Δ 0.62	● 152415	● 173721
0.8	0.2	25	2.4	2	Δ 0.71	● 152418	● 173722
0.9	0.225	25	2.7	2	Δ 0.8	● 152421	● 173723
1	0.25	40	3	2.5	Δ 0.88	● 151559	● 173729
1.2	0.25	40	3.6	2.5	Δ 1.08	● 151565	● 173730
1.4	0.3	40	4.2	2.5	Δ 1.25	● 152429	● 173731

Δ Tol. = +0/0.02 mm



6HX — 6HX

Ø d_1 M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		ID	ID
1.6	0.35	40	4.8	2.5		Δ 1.45	● 152433	● 193801
1.8	0.35	40	5.4	2.5		Δ 1.65	● 193764	● 193802
2	0.4	45	8	2.8	2.1	Δ 1.8	● 151566	● 193803
2.3	0.4	45	9	2.8	2.1	Δ 2.1	● 193765	● 193804
2.5	0.45	50	10	2.8	2.1	Δ 2.3	● 193766	● 193805
2.6	0.45	50	10	2.8	2.1	Δ 2.4	● 193767	● 193806

Δ Tol. = +0/0.02 mm

MF ISO DIN 13

CLASSIC SYNCHRO | PM | DC – DIN 371

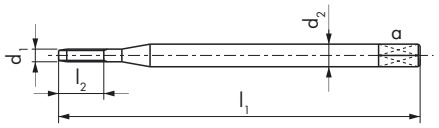
FA

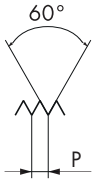
FA80VS	FA83VS		
			
			

FA80VS  VS

FA83VS  VS

11 12 13 14 15
21 22 23 24 51
61 63 64 71 72
73 91 92 94



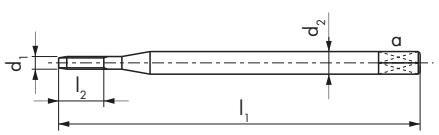


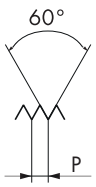
E 1.5 x P — C 2.5 x P

4HX — 4HX

Ø d_1 MF	P mm	l_1 mm	l_2 mm	d_2 mm	a mm	Δ	ID	ID
1.4	0.2	40	4.2	2.5		Δ1.31	155928	180436
1.6	0.2	40	4.8	2.5		Δ1.51	156480	193807
1.8	0.2	40	5.4	2.5		Δ1.71	193768	193808
2	0.2	45	6	2.8	2.1	Δ1.91	193769	193809
2	0.25	45	6	2.8	2.1	Δ1.88	193770	193810
2.2	0.2	45	6.6	2.8	2.1	Δ2.11	193771	193811
2.2	0.25	45	6.6	2.8	2.1	Δ2.08	193772	193812
2.3	0.2	45	6.9	2.8	2.1	Δ2.21	193773	193813
2.3	0.25	45	6.9	2.8	2.1	Δ2.18	193774	193814
2.5	0.2	50	7.5	2.8	2.1	Δ2.41	193775	193815
2.5	0.25	50	7.5	2.8	2.1	Δ2.38	193776	193816

Δ Tol. = +0/0.02 mm





6HX — 6HX

Ø d_1 MF	P mm	l_1 mm	l_2 mm	d_2 mm	a mm	Δ	ID	ID
2.5	0.35	50	7.5	2.8	2.1	Δ2.35	193777	193817
2.6	0.35	50	7.8	2.8	2.1	Δ2.45	193778	193818

Δ Tol. = +0/0.02 mm

UNC ASME B1.1

CLASSIC SYNCHRO | PM | DC – DIN 371

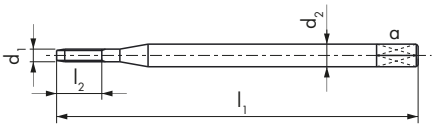
FA

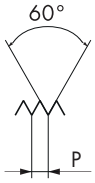
FA80VS	FA83VS		
			
 < 2.5 x D	 < 2.5 x D		

FA80VS  VS

FA83VS  VS

11 12 13 14 15
21 22 23 24 51
61 63 64 71 72
73 91 92 94



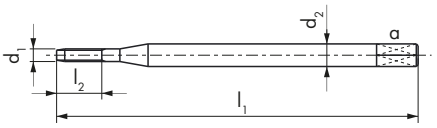


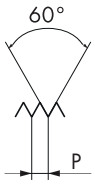
E 1.5 x P — C 2.5 x P

2BX — 2BX

Ø d_1 UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm		ID	ID
1	64	1.85	40	5.6	2.5		Δ1.65	● 193779	● 193819
2	56	2.18	45	9	2.8	2.1	Δ2	● 193780	● 193820
3	48	2.51	50	10	2.8	2.1	Δ2.25	● 193781	● 193821

Δ Tol. = +0/0.02 mm





3BX — 3BX

Ø d_1 UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm		ID	ID
1	64	1.85	40	5.6	2.5		Δ1.65	● 193782	● 193822
2	56	2.18	45	9	2.8	2.1	Δ2	● 193783	● 193823
3	48	2.51	50	10	2.8	2.1	Δ2.25	● 193784	● 193824

Δ Tol. = +0/0.02 mm

UNF ASME B1.1

CLASSIC | SYNCHRO | PM | DC – DIN 371

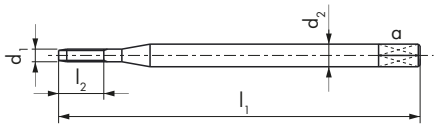
FA

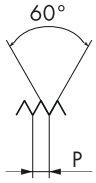
FA80VS	FA83VS		
			

FA80VS  VS

FA83VS  VS

11 12 13 14 15
21 22 23 24 51
61 63 64 71 72
73 91 92 94

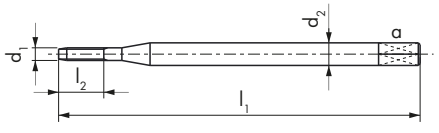


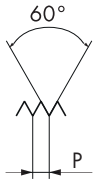


2BX | 2BX

Ø d_1 UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm	Δ	ID	ID
0	80	1.52	40	4.6	2.5		Δ1.4	● 193785	● 193825
1	72	1.85	40	5.6	2.5		Δ1.7	● 193786	● 193826
2	64	2.18	45	9	2.8	2.1	Δ2	● 193787	● 193827
3	56	2.51	50	10	2.8	2.1	Δ2.3	● 193788	● 193828

Δ Tol. = +0/0.02 mm





3BX | 3BX

Ø d_1 UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm	Δ	ID	ID
0	80	1.52	40	4.6	2.5		Δ1.4	● 193789	● 193829
1	72	1.85	40	5.6	2.5		Δ1.7	● 193790	● 193830
2	64	2.18	45	9	2.8	2.1	Δ2	● 193791	● 193831
3	56	2.51	50	10	2.8	2.1	Δ2.3	● 193792	● 193832

Δ Tol. = +0/0.02 mm

S NIHS 06-10

CLASSIC SYNCHRO PM DC

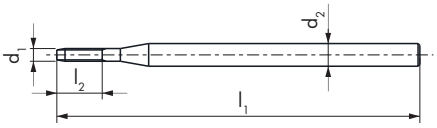
FA

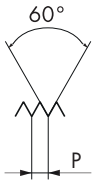
FA80VS	FA83VS		
			

FA80VS  VS

FA83VS  VS

11 12 13 14 15
21 22 23 24 51
61 63 64 71 72
73 91 92 94





NIHS NIHS

Ø d_1 S	P mm	l_1 mm	l_2 mm	d_2 mm		ID	ID
0.4	0.1	25	1.2	2	Δ 0.35	● 182790	● 185362
0.5	0.125	25	1.5	2	Δ 0.44	● 158977	● 173724
0.6	0.15	25	1.8	2	Δ 0.53	● 151561	● 173725
0.7	0.175	25	2.1	2	Δ 0.62	● 151742	● 173726
0.8	0.2	25	2.4	2	Δ 0.71	● 151564	● 173727
0.9	0.225	25	2.7	2	Δ 0.8	● 151562	● 173728
1	0.25	40	3.0	2.5	Δ 0.88	● 151542	● 173732
1.2	0.25	40	3.6	2.5	Δ 1.08	● 151543	● 173733
1.4	0.3	40	4.2	2.5	Δ 1.25	● 152427	● 173734

Δ Tol. = +0/0.02 mm

SF

NIHS 06-10 Fine Thread

CLASSIC | SYNCHRO | PM | DC – DIN 371

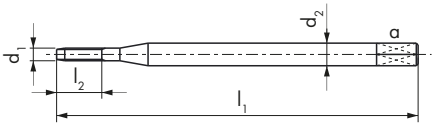
FA

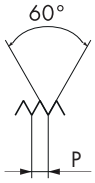
	FA80VS	FA83VS		
				
				

FA80VS — VS

FA83VS — VS

11 12 13 14 15
21 22 23 24 51
61 63 64 71 72
73 91 92 94

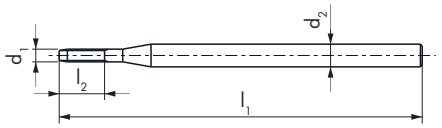
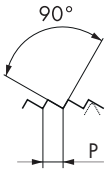




Ø d_1 SF	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		FA80VS ID	FA83VS ID
1.4	0.2	40	4.2	2.5		Δ1.31	176180	193793
1.6	0.2	40	4.8	2.5		Δ1.51	193757	193794
1.8	0.2	40	5.4	2.5		Δ1.71	193758	193795
2	0.2	45	6	2.8	2.1	Δ1.91	193759	193796
2.2	0.2	45	6.6	2.8	2.1	Δ2.11	193760	193797
2.2	0.25	45	6.6	2.8	2.1	Δ2.08	193761	193798
2.5	0.2	50	7.5	2.8	2.1	Δ2.41	193762	193799
2.5	0.25	50	7.5	2.8	2.1	Δ2.38	193763	193800

Δ Tol. = +0/0.02 mm

FA

	FA80VS	FA83VS		
				
				
				
				

FA80VS  VS

FA83VS  VS

Ø d_1 SL	P mm	l_1 mm	l_2 mm	d_2 mm	FA80VS ID	FA83VS ID
0.5	0.1	25	1.5	2	600049	600100
0.6	0.125	25	1.8	2	600050	600101
0.7	0.15	25	2.1	2	600051	600102
0.8	0.15	25	2.4	2	600052	600103
0.9	0.175	25	2.7	2	600053	600104
1	0.2	40	3	2.5	600054	600105
1.2	0.2	40	3.6	2.5	600055	600106
1.4	0.25	40	4.2	2.5	600056	600107

M ISO DIN 13 ISO DIN 14

CLASSIC | SYNCHRO | VHM CAR | DC

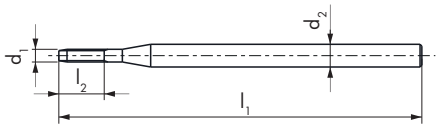
CFA

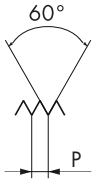
CFA80VS	CFA83VS		

CFA80VS — VS

62 | 63 | 91 | 92 | 94

CFA83VS — VS

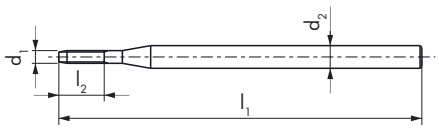



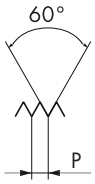


4HX | 4HX

Ø d_1 M	P mm	l_1 mm	l_2 mm	d_2h5 mm		ID	ID
0.5	0.125	32	1.5	1.5	Δ 0.44	● 171771	● 193611
0.6	0.15	32	1.8	1.5	Δ 0.53	● 171773	● 193612
0.7	0.175	32	2.1	1.5	Δ 0.62	● 171775	● 193613
0.8	0.2	32	2.4	1.5	Δ 0.71	● 171777	● 193614
0.9	0.225	32	2.7	1.5	Δ 0.8	● 171779	● 193615
1	0.25	32	3	2	Δ 0.88	● 171782	● 193616
1.2	0.25	32	3.6	2	Δ 1.08	● 171783	● 193617
1.4	0.3	32	4.2	2	Δ 1.25	● 171785	● 193618

Δ Tol. = +0/0.02 mm





6HX | 6HX

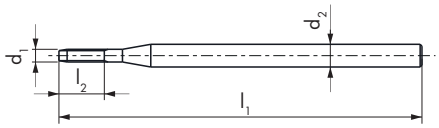
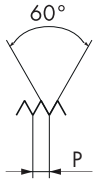
Ø d_1 M	P mm	l_1 mm	l_2 mm	d_2h5 mm		ID	ID
1.6	0.35	32	4.8	2	Δ 1.45	● 193590	● 193619
1.8	0.35	32	5.4	2	Δ 1.65	● 193591	● 193620
2	0.4	39	8	3	Δ 1.8	● 193592	● 193621
2.3	0.4	39	9	3	Δ 2.1	● 193593	● 193622
2.5	0.45	39	10	3	Δ 2.3	● 193594	● 193623
2.6	0.45	39	10	3	Δ 2.4	● 193595	● 193624

Δ Tol. = +0/0.02 mm

UNC ASME B1.1

CLASSIC | SYNCHRO | VHM CAR | DC

CFA

	CFA80VS	CFA83VS		
				
				
	 	 		
	2BX	2BX		

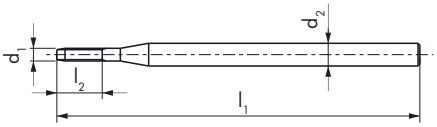
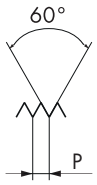
Ø d_1 UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2h5 mm		ID	ID
1	64	1.85	32	5.5	2	Δ1.65	● 193596	● 193625
2	56	2.18	39	8.6	3	Δ2	● 193597	● 193626
3	48	2.51	39	10	3	Δ2.25	● 193598	● 193627

Δ Tol. = +0/0.02 mm

UNF ASME B1.1

CLASSIC | SYNCHRO | VHM CAR | DC

CFA

	CFA80VS	CFA83VS		
				
				
	 	E 1.5 x P	C 2.5 x P	
		2BX	2BX	

CFA80VS  VS

62 | 63 | 91 | 92 | 94

CFA83VS  VS

Ø d_1 UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 h5 mm		ID	ID
0	80	1.52	32	4.5	2	Δ1.4	● 193599	● 193628
1	72	1.85	32	5.5	2	Δ1.7	● 193600	● 193629
2	64	2.18	39	8.6	3	Δ2	● 193601	● 193630
3	56	2.51	39	10	3	Δ2.3	● 193602	● 193631

Δ Tol. = +0/0.02 mm

S NIHS 06-10

CLASSIC | SYNCHRO | VHM CAR | DC

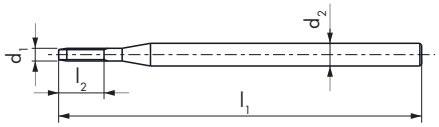
CFA

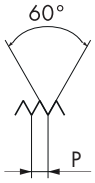
CFA80VS — VS

62 | 63 | 91 | 92 | 94

CFA83VS — VS

CFA80VS	CFA83VS		
			
			





	
NIHS	NIHS

Ø d_1 S	P mm	l_1 mm	l_2 mm	d_2h5 mm		CFA80VS ID	CFA83VS ID
0.5	0.125	32	1.5	1.5	Δ 0.44	● 171770	● 193603
0.6	0.15	32	1.8	1.5	Δ 0.53	● 171772	● 193604
0.7	0.175	32	2.1	1.5	Δ 0.62	● 171774	● 193605
0.8	0.2	32	2.4	1.5	Δ 0.71	● 171776	● 193606
0.9	0.225	32	2.7	1.5	Δ 0.8	● 171778	● 193607
1	0.25	32	3	2	Δ 0.88	● 171780	● 193608
1.2	0.25	32	3.6	2	Δ 1.08	● 171781	● 193609
1.4	0.3	32	4.2	2	Δ 1.25	● 171784	● 193610

Δ Tol. = +0/0.02 mm

SRT Tapping chucks with axial shock absorber

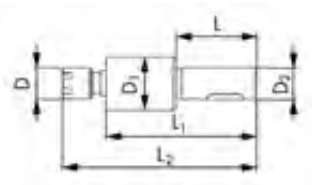
SYNCHRO
Uniquement pour taraudage synchrone
Nur für Synchronbearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para roscado sincronizado
Только для ridgid tapping

DIN 1835 B

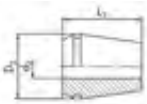
SRT032-D6 | SRT054-D12 | ER8

SRT nano

SRT032 / SRT054



D9865-



	D mm	D_1 mm	D_2 mm	L mm	L_1 mm	L_2 mm	ID	ID
M0.3 - M2	12	11	6	25	40	56	● 157610	
M0.5 - M4	12	20	12	33	59	75		● 127413

No	D_2 mm	L_3 mm	d_2 mm	ID
ER8-0100	8.5	13.5	1	● 179401
ER8-0150	8.5	13.5	1.5	● 179400
ER8-0200	8.5	13.5	2	● 118895
ER8-0250	8.5	13.5	2.5	● 118896
ER8-0300	8.5	13.5	3	● 118897

GW3015VS / VX
GWi3O65VS / VX

DC®
THREADING SOLUTIONS


New Type
GWi6000
DC
THREADING SOLUTIONS

M ISO DIN 14 ISO DIN 13

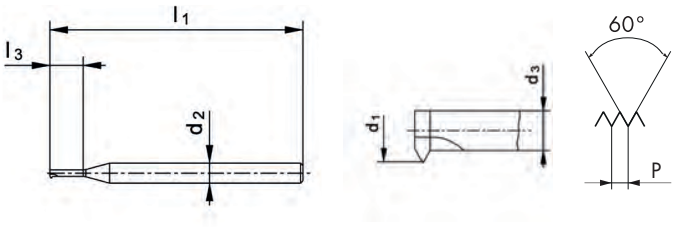
VHM CAR | < 3µm | DC | h5

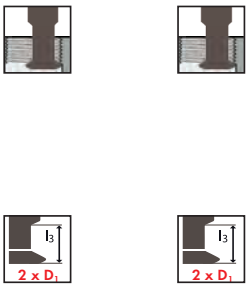
GW

GW1115 | GW1115VS

GW1115 — R10

GW1115VS — R10 — VS





Ø D_1 M	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID
0.3	0.08	0.21	39	0.8	3	0.1	1	0.23	● 206246	● 206257
0.35	0.09	0.25	39	0.9	3	0.13	1	0.28	● 206247	● 206258
0.4	0.1	0.29	39	1	3	0.15	1	0.32 [1]	● 206248	● 206259
0.5	0.125	0.36	39	1.2	3	0.19	1	0.41 [1]	● 206249	● 206260
0.6	0.15	0.43	39	1.4	3	0.23	1	0.5 [1]	● 206250	● 206261
0.7	0.175	0.5	39	1.7	3	0.27	1	0.58 [1]	● 206251	● 206262
0.8	0.2	0.57	39	1.9	3	0.31	1	0.66 [1]	● 206252	● 206263
0.9	0.225	0.64	39	2.1	3	0.34	1	0.74 [1]	● 206253	● 206264
1	0.25	0.71	39	2.4	3	0.38	1	0.75	● 206254	● 206265
1.2	0.25	0.91	39	2.8	3	0.58	1	0.95	● 206255	● 206266
1.4	0.3	1.06	39	3.2	3	0.66	1	1.1	● 206256	● 206267

[1] 4H5H → 4H6H = 0 .02mm

M ISO DIN 14 ISO DIN 13

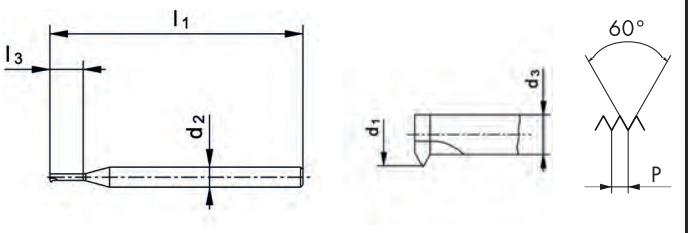
VHM CAR | < 3µm | DC | h5

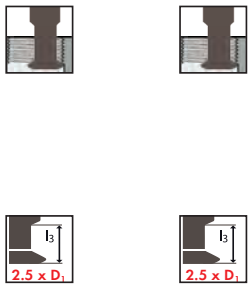
GW

GW1116 | GW1116VS

GW1116 — R10

GW1116VS — R10 — VS





Ø D1 M	P mm	d1 mm	l1 mm	l3 mm	d2 h5 mm	d3 mm			GW1116 ID	GW1116VS ID
0.3	0.08	0.21	39	0.9	3	0.1	1	0.23	● 194227	● 194245
0.35	0.09	0.25	39	1	3	0.13	1	0.28	● 194228	● 194246
0.4	0.1	0.29	39	1.2	3	0.15	1	0.32 [1]	● 194229	● 194247
0.5	0.125	0.36	39	1.5	3	0.19	1	0.41 [1]	● 194230	● 194248
0.6	0.15	0.43	39	1.7	3	0.23	1	0.5 [1]	● 194231	● 194249
0.7	0.175	0.5	39	2	3	0.27	1	0.58 [1]	● 194232	● 194250
0.8	0.2	0.57	39	2.3	3	0.31	1	0.66 [1]	● 194233	● 194251
0.9	0.225	0.64	39	2.6	3	0.34	1	0.74 [1]	● 194234	● 194252
1	0.25	0.71	39	2.9	3	0.38	1	0.75	● 194235	● 194253
1.2	0.25	0.91	39	3.4	3	0.58	1	0.95	● 194236	● 194254
1.4	0.3	1.06	39	3.9	3	0.66	1	1.1	● 194237	● 194255

[1] 4H5H → 4H6H = +0.02mm

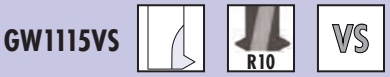
S NIHS 06-10

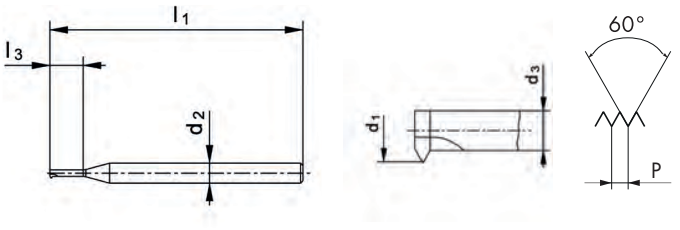
VHM CAR | < 3µm | DC | h5

GW

GW1115 | GW1115VS

GW1115VS





Ø D_1 S	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID
0.3	0.08	0.21	39	0.8	3	0.1	1	0.23	● 206268	● 206279
0.35	0.09	0.25	39	0.9	3	0.13	1	0.28	● 206269	● 206280
0.4	0.1	0.29	39	1	3	0.15	1	0.32 [1]	● 206270	● 206281
0.5	0.125	0.36	39	1.2	3	0.19	1	0.41 [1]	● 206271	● 206282
0.6	0.15	0.43	39	1.4	3	0.23	1	0.5 [1]	● 206272	● 206283
0.7	0.175	0.5	39	1.7	3	0.27	1	0.58 [1]	● 206273	● 206284
0.8	0.2	0.57	39	1.9	3	0.31	1	0.66 [1]	● 206274	● 206285
0.9	0.225	0.64	39	2.1	3	0.34	1	0.74 [1]	● 206275	● 206286
1	0.25	0.71	39	2.4	3	0.38	1	0.82 [1]	● 206276	● 206287
1.2	0.25	0.91	39	2.8	3	0.58	1	1.02 [1]	● 206277	● 206288
1.4	0.3	1.06	39	3.2	3	0.66	1	1.18 [1]	● 206278	● 206289

[1] 4H5H → 4H6H = ⌀ .02mm

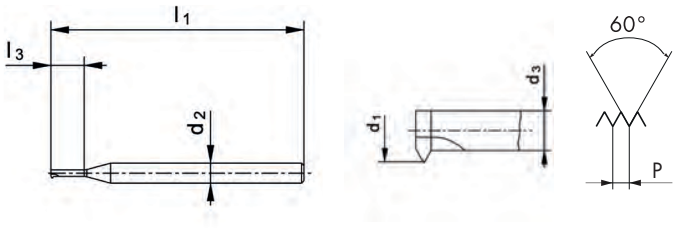
S NIHS 06-10

VHM CAR | < 3µm | DC | h5

GW

GW1116 R10

GW1116VS R10 VS



	GW1116	GW1116VS		
				
				
	 2.5 x D1	 2.5 x D1		

Ø D1 S	P mm	d1 mm	l1 mm	l3 mm	d2 h5 mm	d3 mm			ID	ID
0.3	0.08	0.21	39	0.9	3	0.1	1	0.23	● 166930	● 166940
0.35	0.09	0.25	39	1	3	0.13	1	0.28	● 194226	● 194244
0.4	0.1	0.29	39	1.2	3	0.15	1	0.32 [1]	● 166931	● 166941
0.5	0.125	0.36	39	1.5	3	0.19	1	0.41 [1]	● 166932	● 166942
0.6	0.15	0.43	39	1.7	3	0.23	1	0.5 [1]	● 166933	● 166943
0.7	0.175	0.5	39	2	3	0.27	1	0.58 [1]	● 166934	● 166944
0.8	0.2	0.57	39	2.3	3	0.31	1	0.66 [1]	● 166935	● 166945
0.9	0.225	0.64	39	2.6	3	0.34	1	0.74 [1]	● 166936	● 166946
1	0.25	0.71	39	2.9	3	0.38	1	0.82 [1]	● 166937	● 166947
1.2	0.25	0.91	39	3.4	3	0.58	1	1.02 [1]	● 166938	● 166948
1.4	0.3	1.06	39	3.9	3	0.66	1	1.18 [1]	● 166939	● 166949

[1] 4H5H → 4H6H = + .02mm

SL

SL 15-01

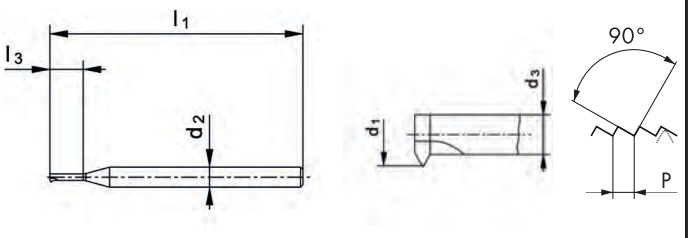
VHM CAR | < 3µm | DC | h5

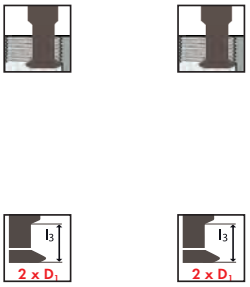
GW

GW1115 | GW1115VS

GW1115 — R10

GW1115VS — R10 — VS





Ø D_1 SL	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID
0.3	0.06	0.23	39	0.7	3	0.15	1	0.27	600268	600279
0.35	0.06	0.28	39	0.8	3	0.2	1	0.32	600269	600280
0.4	0.08	0.31	39	1	3	0.2	1	0.36	600270	600281
0.5	0.1	0.39	39	1.2	3	0.25	1	0.46	600271	600282
0.6	0.125	0.46	39	1.4	3	0.29	1	0.55	600272	600283
0.7	0.15	0.53	39	1.6	3	0.32	1	0.64	600273	600284
0.8	0.15	0.63	39	1.8	3	0.42	1	0.74	600274	600285
0.9	0.175	0.7	39	2.1	3	0.46	1	0.83	600275	600286
1	0.2	0.77	39	2.3	3	0.49	1	0.92	600276	600287
1.2	0.2	0.97	39	2.7	3	0.69	1	1.12	600277	600288
1.4	0.25	1.11	39	3.2	3	0.76	1	1.3	600278	600289

SL

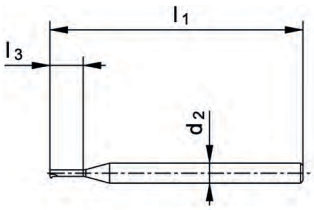
SL 15-01

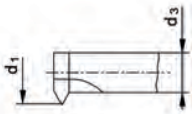
VHM CAR | < 3µm | DC | h5

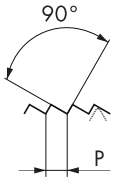
GW

GW1116


GW1116VS





GW1116	GW1116VS		
			
			
			

Ø D_1 SL	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID
0.3	0.06	0.23	39	0.9	3	0.15	1	0.27	600017	600023
0.35	0.06	0.28	39	1	3	0.2	1	0.32	600237	600243
0.4	0.08	0.31	39	1.2	3	0.2	1	0.36	600018	600024
0.5	0.1	0.39	39	1.4	3	0.25	1	0.46	600019	600025
0.6	0.125	0.46	39	1.7	3	0.29	1	0.55	600020	600026
0.7	0.15	0.53	39	2	3	0.32	1	0.64	600021	600027
0.8	0.15	0.63	39	2.2	3	0.42	1	0.74	600238	600244
0.9	0.175	0.7	39	2.5	3	0.46	1	0.83	600239	600245
1	0.2	0.77	39	2.8	3	0.49	1	0.92	600240	600246
1.2	0.2	0.97	39	3.3	3	0.69	1	1.12	600241	600247
1.4	0.25	1.11	39	3.9	3	0.76	1	1.3	600242	600248

M ISO DIN 14 ISO DIN 13

VHM CAR | < 3µm | DC | h5

GW

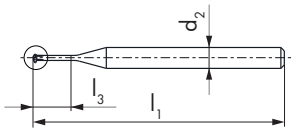
GW2015 | GW2015VS

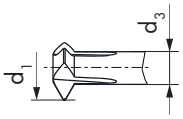
GW2015 — R10

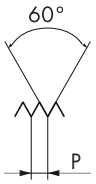
GW2015VS — R10 — VS

NEW

NEW







Ø D_1 M	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID
0.5	0.125	0.36	39	1.2	3	0.19	3	0.41 [1]	206290	206308
0.6	0.15	0.43	39	1.4	3	0.22	3	0.5 [1]	206291	206309
0.7	0.175	0.5	39	1.7	3	0.26	3	0.58 [1]	206292	206310
0.8	0.2	0.57	39	1.9	3	0.29	3	0.66 [1]	206293	206311
0.9	0.225	0.64	39	2.1	3	0.33	3	0.74 [1]	206294	206312
1	0.25	0.71	39	2.4	3	0.36	3	0.75	206295	206313
1.2	0.25	0.91	39	2.8	3	0.56	3	0.95	206296	206314
1.4	0.3	1.06	39	3.2	3	0.64	3	1.1	206297	206315
1.6	0.35	1.2	39	3.7	3	0.71	3	1.25	206298	206316
1.8	0.35	1.4	39	4.1	3	0.91	3	1.45	206606	206317
2	0.4	1.54	39	4.6	3	0.98	3	1.6	206299	206318
2.3	0.4	1.84	39	5.2	3	1.28	3	1.9	206300	206319
2.5	0.45	1.98	39	5.6	3	1.35	3	2.05	206301	206320
2.6	0.45	2.08	39	5.8	3	1.45	3	2.15	206302	206321

[1] 4H5H → 4H6H = +0.02mm

M ISO DIN 14 ISO DIN 13

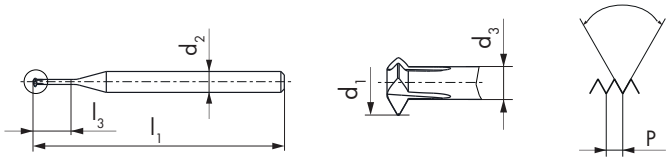
VHM CAR | < 3µm | DC | h5

GW

GW2016 | GW2016VS

GW2016 — R10

GW2016VS — R10 — VS



Ø D_1 M	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID
0.5	0.125	0.36	39	1.5	3	0.19	3	0.41 [1]	● 194262	● 194275
0.6	0.15	0.43	39	1.7	3	0.22	3	0.5 [1]	● 194263	● 194276
0.7	0.175	0.5	39	2	3	0.26	3	0.58 [1]	● 194264	● 194277
0.8	0.2	0.57	39	2.3	3	0.29	3	0.66 [1]	● 166974	● 166993
0.9	0.225	0.64	39	2.6	3	0.33	3	0.74 [1]	● 166975	● 166994
1	0.25	0.71	39	2.9	3	0.36	3	0.75	● 166976	● 166995
1.2	0.25	0.91	39	3.4	3	0.56	3	0.95	● 166977	● 166996
1.4	0.3	1.06	39	3.9	3	0.64	3	1.1	● 166978	● 166997
1.6	0.35	1.2	39	4.5	3	0.71	3	1.25	● 166979	● 166998
1.8	0.35	1.4	39	5	3	0.91	3	1.45	● 166980	● 166999
2	0.4	1.54	39	5.6	3	0.98	3	1.6	● 166981	● 167000
2.3	0.4	1.84	39	6.3	3	1.28	3	1.9	● 194265	● 167399
2.5	0.45	1.98	39	6.9	3	1.35	3	2.05	● 166982	● 167001
2.6	0.45	2.08	39	7.1	3	1.45	3	2.15	● 194266	● 194278

[1] 4H5H → 4H6H = ⌀ .02mm

S

NIHS 06-10

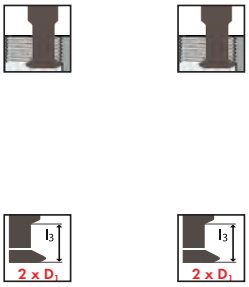
VHM CAR | < 3µm | DC | h5

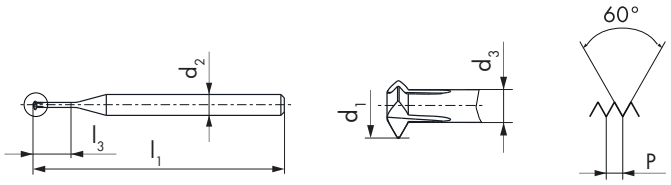
GW

GW2015	GW2015VS		

GW2015 — R10

GW2015VS — R10 — VS





Ø D_1 S	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			GW2015 ID	GW2015VS ID
0.5	0.125	0.36	39	1.2	3	0.19	3	0.41 [1]	● 206327	● 206335
0.6	0.15	0.43	39	1.4	3	0.22	3	0.5 [1]	● 206328	● 206336
0.7	0.175	0.5	39	1.7	3	0.26	3	0.58 [1]	● 206329	● 206337
0.8	0.2	0.57	39	1.9	3	0.29	3	0.66 [1]	● 206330	● 206338
0.9	0.225	0.64	39	2.1	3	0.33	3	0.74 [1]	● 206331	● 206339
1	0.25	0.71	39	2.4	3	0.36	3	0.82 [1]	● 206332	● 206340
1.2	0.25	0.91	39	2.8	3	0.56	3	1.02 [1]	● 206333	● 206341
1.4	0.3	1.06	39	3.2	3	0.64	3	1.18 [1]	● 206334	● 206342

[1] 4H5H → 4H6H = ϑ .02mm

S NIHS 06-10

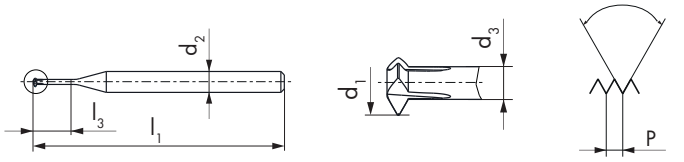
VHM CAR | < 3µm | DC | h5

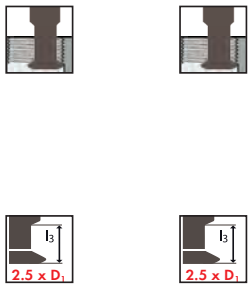
GW

GW2016 | GW2016VS

GW2016 — R10

GW2016VS — R10 — VS





Ø D_1 S	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			GW2016 ID	GW2016VS ID
0.5	0.125	0.36	39	1.5	3	0.19	3	0.41 [1]	181410	181413
0.6	0.15	0.43	39	1.7	3	0.22	3	0.5 [1]	181374	180947
0.7	0.175	0.5	39	2	3	0.26	3	0.58 [1]	181375	181378
0.8	0.2	0.57	39	2.3	3	0.29	3	0.66 [1]	166969	166988
0.9	0.225	0.64	39	2.6	3	0.33	3	0.74 [1]	166970	166989
1	0.25	0.71	39	2.9	3	0.36	3	0.82 [1]	166971	166990
1.2	0.25	0.91	39	3.4	3	0.56	3	1.02 [1]	166972	166991
1.4	0.3	1.06	39	3.9	3	0.64	3	1.18 [1]	166973	166992

[1] 4H5H → 4H6H = + .02mm

SL

SL 15-01

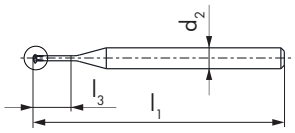
VHM CAR | < 3µm | DC | h5

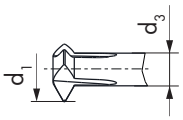
GW

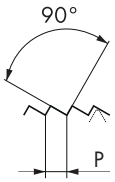
GW2015 — R10

GW2015VS — R10 — VS

GW2015	GW2015VS		







Ø D_1 SL	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID
0.5	0.1	0.39	39	1.2	3	0.25	3	0.46	600290	600298
0.6	0.125	0.46	39	1.4	3	0.29	3	0.55	600291	600299
0.7	0.15	0.53	39	1.6	3	0.32	3	0.64	600292	600300
0.8	0.15	0.63	39	1.8	3	0.42	3	0.74	600293	600301
0.9	0.175	0.7	39	2.1	3	0.46	3	0.83	600294	600302
1	0.2	0.77	39	2.3	3	0.49	3	0.92	600295	600303
1.2	0.2	0.97	39	2.7	3	0.69	3	1.12	600296	600304
1.4	0.25	1.11	39	3.2	3	0.76	3	1.3	600297	600305

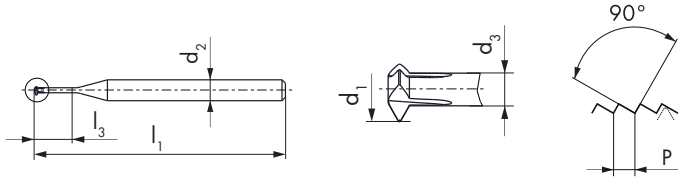
SL SL 15-01

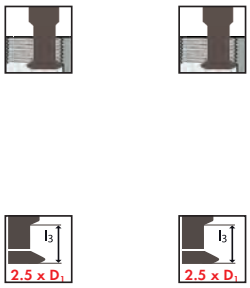
VHM CAR | < 3µm | DC | h5

GW

GW2016

GW2016VS





Ø D_1 SL	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID
0.5	0.1	0.39	39	1.4	3	0.25	3	0.46	600249	600257
0.6	0.125	0.46	39	1.7	3	0.29	3	0.55	600250	600258
0.7	0.15	0.53	39	2	3	0.32	3	0.64	600251	600259
0.8	0.15	0.63	39	2.2	3	0.42	3	0.74	600252	600260
0.9	0.175	0.7	39	2.5	3	0.46	3	0.83	600253	600261
1	0.2	0.77	39	2.8	3	0.49	3	0.92	600254	600262
1.2	0.2	0.97	39	3.3	3	0.69	3	1.12	600255	600263
1.4	0.25	1.11	39	3.9	3	0.76	3	1.3	600256	600264

M ISO DIN 14 ISO DIN 13

VHM CAR | < 3µm | DC | h5

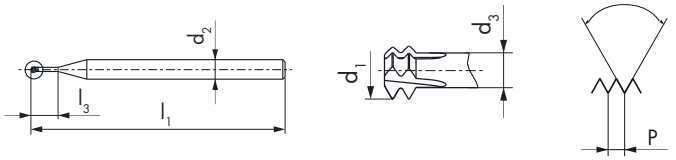
GW

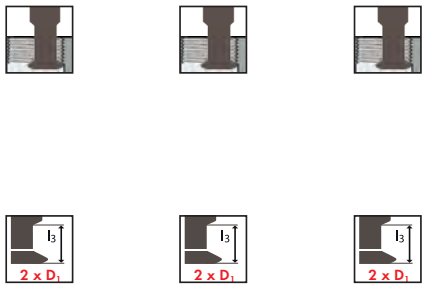
GW3015 | GW3015VS | GW3015VX

GW3015 — R10

GW3015VS — R10 — VS

GW3015VX — R10 — VX





Ø D_1 M	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID	ID
0.8	0.2	0.57	39	1.9	3	0.29	3	0.66 [1]	● 206343	● 206359	● 206375
0.9	0.225	0.64	39	2.1	3	0.33	3	0.74 [1]	● 206344	● 206360	● 206376
1	0.25	0.71	39	2.4	3	0.36	3	0.75	● 206345	● 206361	● 206377
1.2	0.25	0.91	39	2.8	3	0.56	3	0.95	● 206346	● 206362	● 206378
1.4	0.3	1.06	39	3.2	3	0.64	3	1.1	● 206347	● 206363	● 206379
1.6	0.35	1.2	39	3.7	3	0.71	3	1.25	● 206348	● 206364	● 206380
1.8	0.35	1.4	39	4.1	3	0.91	3	1.45	● 206349	● 206365	● 206381
2	0.4	1.54	39	4.6	3	0.98	3	1.6	● 206350	● 206366	● 206382
2.3	0.4	1.84	39	5.2	3	1.28	3	1.9	● 206351	● 206367	● 206383
2.5	0.45	1.98	39	5.6	3	1.35	3	2.05	● 206352	● 206368	● 206384
2.6	0.45	2.08	39	5.8	3	1.45	3	2.15	● 206353	● 206369	● 206385

[1] 4H5H → 4H6H = + .02mm

M ISO DIN 14 ISO DIN 13

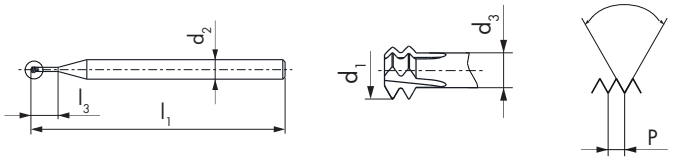
VHM CAR | < 3µm | DC | h5

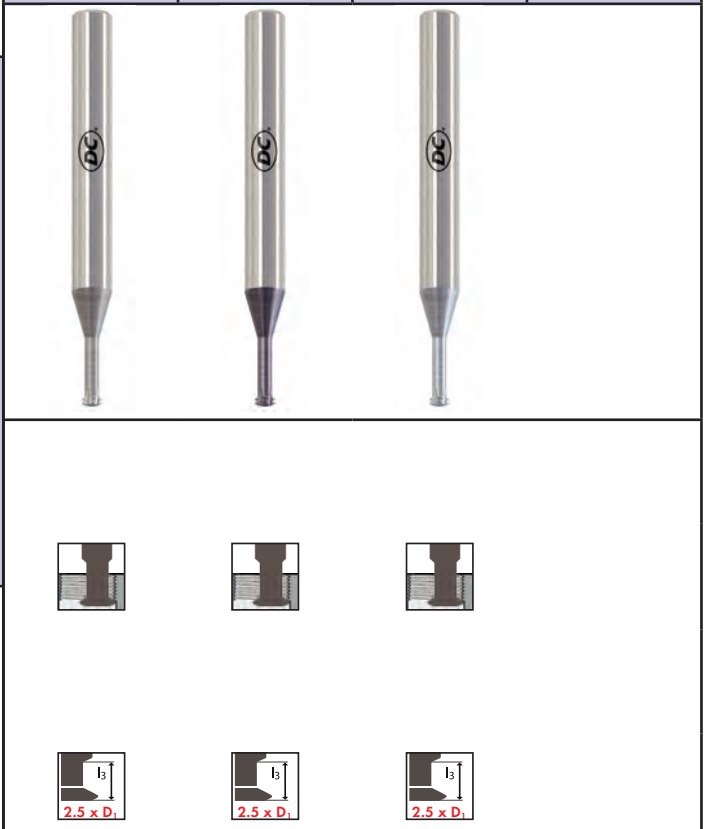
GW

GW3016

GW3016VS

GW3016VX





Ø D1 M	P mm	d1 mm	l1 mm	l3 mm	d2 h5 mm	d3 mm			GW3016 ID	GW3016VS ID	GW3016VX ID
0.8	0.2	0.57	39	2.3	3	0.29	3	0.66 [1]	167021	167035	187261
0.9	0.225	0.64	39	2.6	3	0.33	3	0.74 [1]	167022	167036	187262
1	0.25	0.71	39	2.9	3	0.36	3	0.75	167023	167037	187263
1.2	0.25	0.91	39	3.4	3	0.56	3	0.95	167024	167038	187264
1.4	0.3	1.06	39	3.9	3	0.64	3	1.1	167025	167039	187265
1.6	0.35	1.2	39	4.5	3	0.71	3	1.25	167026	167040	187266
1.8	0.35	1.4	39	5	3	0.91	3	1.45	167027	167041	187267
2	0.4	1.54	39	5.6	3	0.98	3	1.6	167028	167042	187268
2.3	0.4	1.84	39	6.3	3	1.28	3	1.9	196140	167296	194310
2.5	0.45	1.98	39	6.9	3	1.35	3	2.05	167029	167043	187269
2.6	0.45	2.08	39	7.1	3	1.45	3	2.15	196141	194290	194311

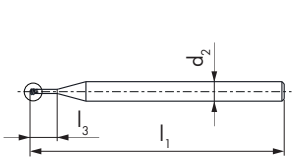
[1] 4H5H → 4H6H = 0 + .02mm

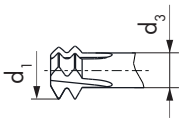
M ISO DIN 14 ISO DIN 13

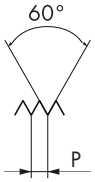
VHM CAR | < 3µm | DC | h5

GW

GW3017	R10		
GW3017VS	R10	VS	
GW3017VX	R10	VX	







Ø D_1 M	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			GW3017 ID	GW3017VS ID	GW3017VX ID
0.8	0.2	0.57	39	2.7	3	0.29	3	0.66 [1]	196172	186266	187389
0.9	0.225	0.64	39	3	3	0.33	3	0.74 [1]	196173	186267	187390
1	0.25	0.71	39	3.4	3	0.36	3	0.75	196189	186268	187391
1.2	0.25	0.91	39	4	3	0.56	3	0.95	196174	186269	187392
1.4	0.3	1.06	39	4.6	3	0.64	3	1.1	196175	186270	187393
1.6	0.35	1.2	39	5.3	3	0.71	3	1.25	196176	186271	187394
1.8	0.35	1.4	39	5.9	3	0.91	3	1.45	196177	186272	187395
2	0.4	1.54	39	6.6	3	0.98	3	1.6	183766	186273	187396
2.3	0.4	1.84	39	7.5	3	1.28	3	1.9	196190	194296	194317
2.5	0.45	1.98	39	8.1	3	1.35	3	2.05	196193	186274	187397
2.6	0.45	2.08	39	8.4	3	1.45	3	2.15	196194	194297	194318

[1] 4H5H → 4H6H = ϑ .02mm

M ISO DIN 14 ISO DIN 13

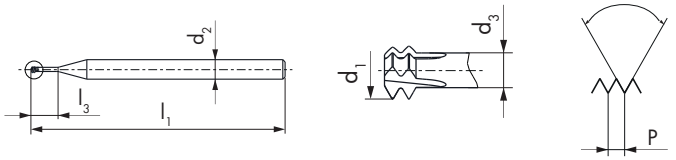
VHM CAR | < 3µm | DC | h5

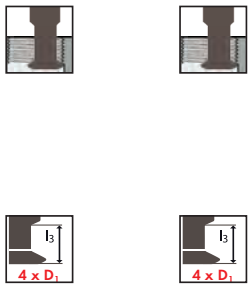
GW

GW3019 | GW3019VS

GW3019 R10

GW3019VS R10 VS





Ø D_1 M	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID
0.8	0.2	0.57	39	3.5	3	0.29	3	0.66 [1]	167063	167077
0.9	0.225	0.64	39	3.9	3	0.33	3	0.74 [1]	167064	167078
1	0.25	0.71	39	4.4	3	0.36	3	0.75	167065	167079
1.2	0.25	0.91	39	5.2	3	0.56	3	0.95	167066	167080
1.4	0.3	1.06	39	6	3	0.64	3	1.1	167067	167081
1.6	0.35	1.2	39	6.9	3	0.71	3	1.25	167068	167082
1.8	0.35	1.4	39	7.7	3	0.91	3	1.45	167069	167083
2	0.4	1.54	39	8.6	3	0.98	3	1.6	167070	167084
2.3	0.4	1.84	39	9.8	3	1.28	3	1.9	196268	194303
2.5	0.45	1.98	39	10.6	3	1.35	3	2.05	167071	167085
2.6	0.45	2.08	39	11	3	1.45	3	2.15	196269	194304

[1] 4H5H → 4H6H = ⌀ .02mm

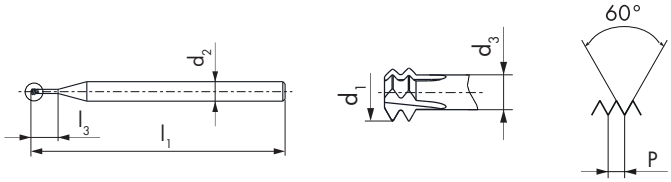
MF ISO DIN 13

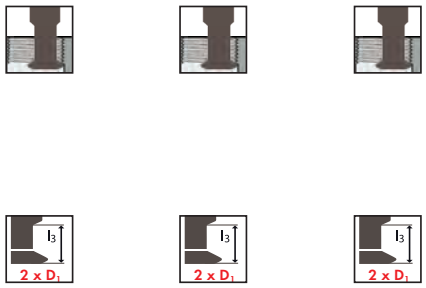
VHM CAR | < 3µm | DC | h5

GW

GW3015	R10		
GW3015VS	R10	VS	
GW3015VX	R10	VX	

GW3015	GW3015VS	GW3015VX
NEW	NEW	NEW





Ø D_1 MF	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID	ID
2	0.2	1.77	39	4.3	3	1.49	3	1.8	206391	206399	206406
2	0.25	1.71	39	4.4	3	1.36	3	1.75	206392	207715	206407
2.5	0.2	2.27	39	5.3	3	1.99	3	2.3	206393	206400	206408
2.5	0.25	2.21	39	5.4	3	1.86	3	2.25	206394	206401	206409

MF ISO DIN 13

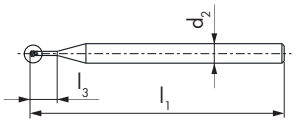
VHM CAR | < 3µm | DC | h5

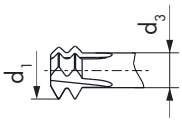
GW

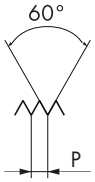
GW3016

GW3016VS

GW3016VX







GW3016	GW3016VS	GW3016VX
		
		
		

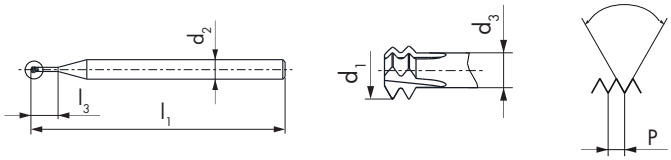
Ø D_1 MF	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID	ID
2	0.2	1.77	39	5.3	3	1.49	3	1.8	● 175225	● 171442	● 187282
2	0.25	1.71	39	5.4	3	1.36	3	1.75	● 196146	● 186209	● 187283
2.5	0.2	2.27	39	6.6	3	1.99	3	2.3	● 175226	● 175241	● 187284
2.5	0.25	2.21	39	6.6	3	1.86	3	2.25	● 175227	● 167299	● 187285

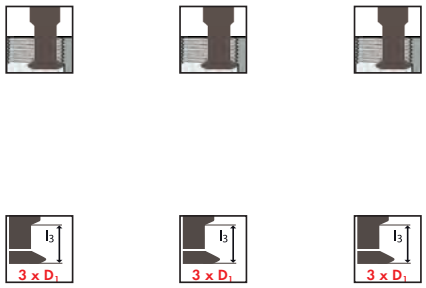
MF ISO DIN 13

VHM CAR | < 3µm | DC | h5

GW

GW3017	R10		
GW3017VS	R10	VS	
GW3017VX	R10	VX	





Ø D_1 MF	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			GW3017 ID	GW3017VS ID	GW3017VX ID
2	0.2	1.77	39	6.3	3	1.49	3	1.8	196197	186325	187410
2	0.25	1.71	39	6.4	3	1.36	3	1.75	196198	186326	187411
2.5	0.2	2.27	39	7.8	3	1.99	3	2.3	196191	186327	187412
2.5	0.25	2.21	39	7.9	3	1.86	3	2.25	196192	186328	187413

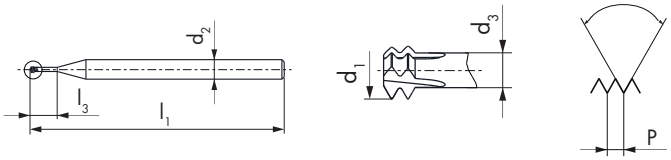
MF ISO DIN 13

VHM CAR | < 3µm | DC | h5

GW

GW3019 R10

GW3019VS R10 VS



Ø D_1 MF	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			GW3019 ID	GW3019VS ID
2	0.2	1.77	39	8.3	3	1.49	3	1.8	175254	175270
2	0.25	1.71	39	8.4	3	1.36	3	1.75	196242	186592
2.5	0.2	2.27	39	10.3	3	1.99	3	2.3	175255	175271
2.5	0.25	2.21	39	10.4	3	1.86	3	2.25	175256	175272

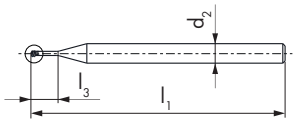
UNC ASME B1.1

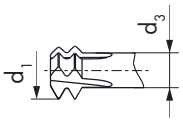
VHM CAR | < 3µm | DC | h5

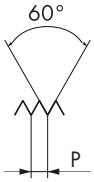
GW

GW3015	R10		
GW3015VS	R10	VS	
GW3015VX	R10	VX	

GW3015	GW3015VS	GW3015VX
 NEW	 NEW	 NEW
		
 2 x D_1	 2 x D_1	 2 x D_1







Ø D_1 UNC	P TPI	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID	ID
2	56	1.66	39	5	3	1.02	3	1.75	● 206414	● 206423	● 206432
3	48	1.91	39	5.8	3	1.17	3	2	● 206415	● 206424	● 206433

UNC ASME B1.1

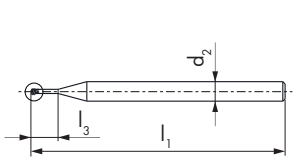
VHM CAR | < 3µm | DC | h5

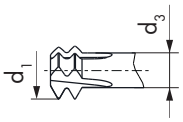
GW

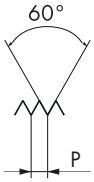
GW3016 | R10

GW3016VS | R10 | VS

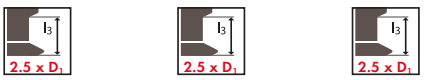
GW3016VX | R10 | VX







Ø D_1 UNC	P TPI	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			GW3016 ID	GW3016VS ID	GW3016VX ID
2	56	1.66	39	6.1	3	1.02	3	1.75	● 167472	● 167500	● 187298
3	48	1.91	39	7	3	1.17	3	2	● 196158	● 186236	● 187299

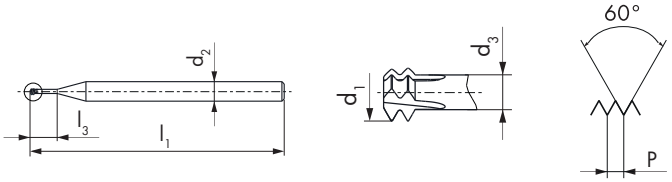


UNC ASME B1.1

VHM CAR | < 3µm | DC | h5

GW

GW3017	R10		
GW3017VS	R10	VS	
GW3017VX	R10	VX	



GW3017	GW3017VS	GW3017VX
		
		
		

Ø D_1 UNC	P TPI	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID	ID
2	56	1.66	39	7.2	3	1.02	3	1.75	● 196219	● 186365	● 187426
3	48	1.91	39	8.3	3	1.17	3	2	● 196221	● 186366	● 187427

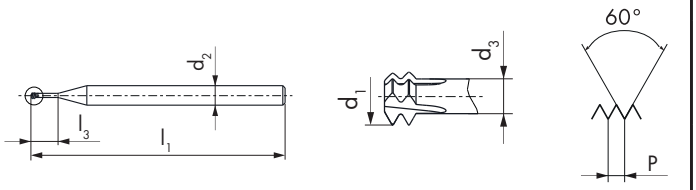
UNC ASME B1.1

VHM CAR | < 3µm | DC | h5

GW

GW3019 — R10

GW3019VS — R10 — VS



Ø D_1 UNC	P TPI	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			GW3019 ID	GW3019VS ID
2	56	1.66	39	9.4	3	1.02	3	1.75	● 167479	● 167507
3	48	1.91	39	10.8	3	1.17	3	2	● 196258	● 186601

UNF ASME B1.1

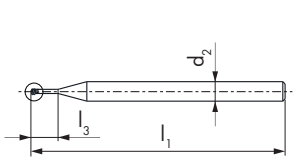
VHM CAR | < 3µm | DC | h5

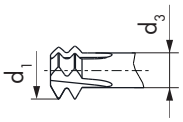
GW

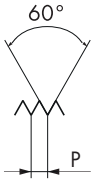
GW3015 — R10

GW3015VS — R10 — VS

GW3015VX — R10 — VX







GW3015	GW3015VS	GW3015VX
 NEW	 NEW	 NEW
		
 2 x D1	 2 x D1	 2 x D1

Ø D1 UNF	P TPI	d1 mm	l1 mm	l3 mm	d2 h5 mm	d3 mm			ID	ID	ID
0	80	1.15	39	3.5	3	0.71	3	1.2	● 206441	● 206451	● 206461
1	72	1.44	39	4.2	3	0.95	3	1.5	● 206442	● 206452	● 206462
2	64	1.73	39	4.9	3	1.17	3	1.8	● 206443	● 206453	● 206463

UNF

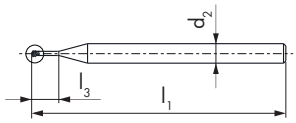
ASME B1.1

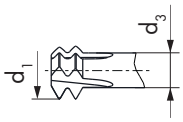
VHM CAR | < 3µm | DC | h5

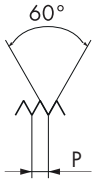
GW

GW3016	R10		
GW3016VS	R10	VS	
GW3016VX	R10	VX	

GW3016	GW3016VS	GW3016VX
		
		
		







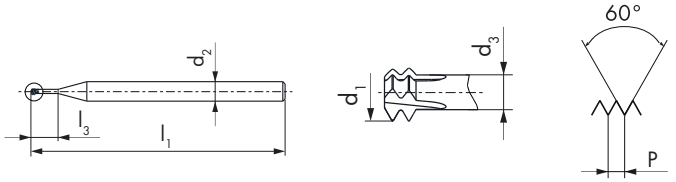
Ø D_1 UNF	P TPI	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID	ID
0	80	1.15	39	4.3	3	0.71	3	1.2	175235	175248	187311
1	72	1.44	39	5.1	3	0.95	3	1.5	175236	175249	187312
2	64	1.73	39	6	3	1.17	3	1.8	196162	186248	187313

UNF ASME B1.1

VHM CAR | < 3µm | DC | h5

GW

GW3017	R10		
GW3017VS	R10	VS	
GW3017VX	R10	VX	



GW3017	GW3017VS	GW3017VX
		
		
		

Ø D_1 UNF	P TPI	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			GW3017 ID	GW3017VS ID	GW3017VX ID
0	80	1.15	39	5	3	0.71	3	1.2	196228	186404	187439
1	72	1.44	39	6.1	3	0.95	3	1.5	196233	186405	187440
2	64	1.73	39	7.1	3	1.17	3	1.8	196234	186406	187441

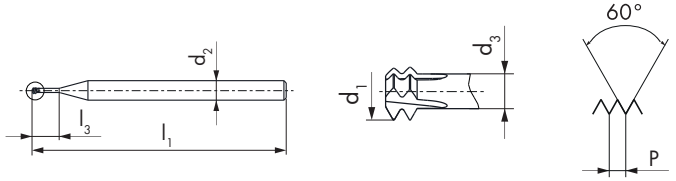
UNF ASME B1.1

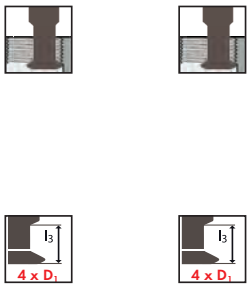
VHM CAR | < 3µm | DC | h5

GW

GW3019

GW3019VS





Ø D_1 UNF	P TPI	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			GW3019 ID	GW3019VS ID
0	80	1.15	39	6.6	3	0.71	3	1.2	175264	175280
1	72	1.44	39	7.9	3	0.95	3	1.5	175265	175281
2	64	1.73	39	9.3	3	1.17	3	1.8	196262	186605

S NIHS 06-10 SL SL 15-01

VHM CAR | < 3µm | DC | h5

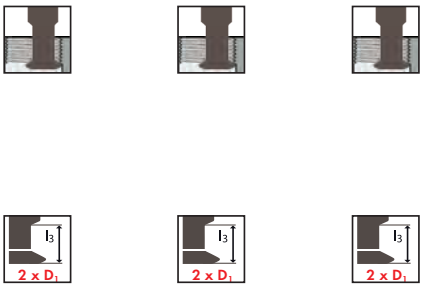
GW

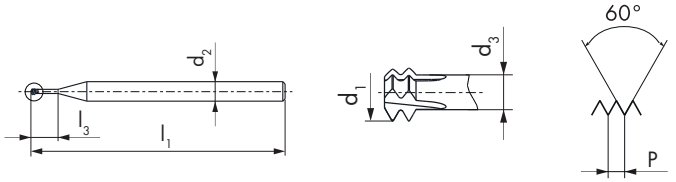
GW3015 | GW3015VS | GW3015VX

GW3015 — R10

GW3015VS — R10 — VS

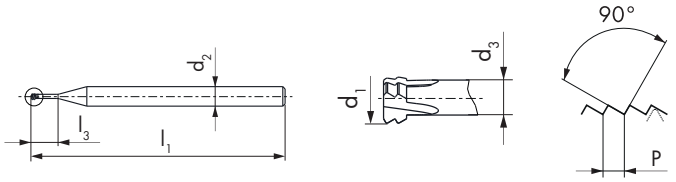
GW3015VX — R10 — VX





Ø D_1 S	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID	ID
0.8	0.2	0.57	39	1.9	3	0.29	3	0.66 [1]	● 206471	● 206476	● 206481
0.9	0.225	0.64	39	2.1	3	0.33	3	0.74 [1]	● 206472	● 206477	● 206482
1	0.25	0.71	39	2.4	3	0.36	3	0.82 [1]	● 206473	● 206478	● 206483
1.2	0.25	0.91	39	2.8	3	0.56	3	1.02 [1]	● 206474	● 206479	● 206484
1.4	0.3	1.06	39	3.2	3	0.64	3	1.18 [1]	● 206475	● 206480	● 206485

[1] 4H5H → 4H6H = + .02mm



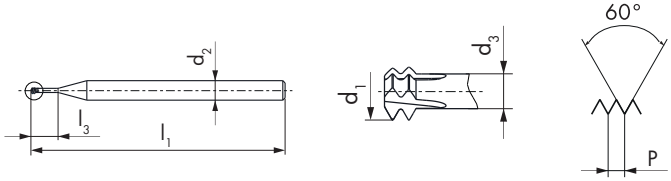
Ø D_1 SL	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID
0.8	0.15	0.63	39	1.8	3	0.42	3	0.74	● 600306	● 600311
0.9	0.175	0.7	39	2.1	3	0.46	3	0.83	● 600307	● 600312
1	0.2	0.77	39	2.3	3	0.49	3	0.92	● 600308	● 600313
1.2	0.2	0.97	39	2.7	3	0.69	3	1.12	● 600309	● 600314
1.4	0.25	1.11	39	3.2	3	0.76	3	1.3	● 600310	● 600315

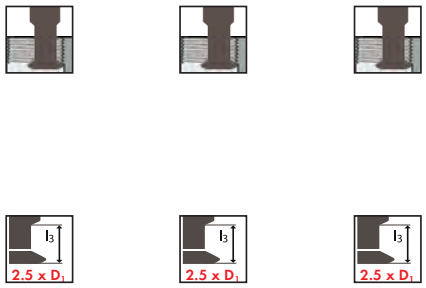
S NIHS 06-10 SL SL 15-01

VHM CAR | < 3µm | DC | h5

GW

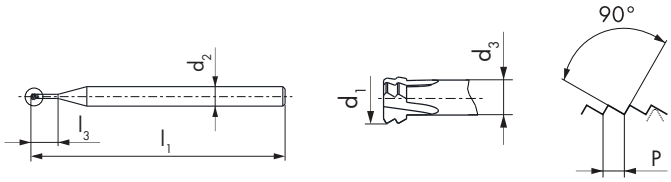
	GW3016	GW3016VS	GW3016VX
	R10	R10 VS	R10 VX





Ø D_1 S	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID	ID
0.8	0.2	0.57	39	2.3	3	0.29	3	0.66 [1]	● 196168	● 194287	● 194305
0.9	0.225	0.64	39	2.6	3	0.33	3	0.74 [1]	● 196169	● 182875	● 194306
1	0.25	0.71	39	2.9	3	0.36	3	0.82 [1]	● 180683	● 168667	● 194307
1.2	0.25	0.91	39	3.4	3	0.56	3	1.02 [1]	● 196170	● 194288	● 194308
1.4	0.3	1.06	39	3.9	3	0.64	3	1.18 [1]	● 196171	● 194289	● 194309

[1] 4H5H → 4H6H = 0 .02mm



Ø D_1 SL	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			ID	ID
0.8	0.15	0.63	39	2.2	3	0.42	3	0.74	● 600028	● 600034
0.9	0.175	0.7	39	2.5	3	0.46	3	0.83	● 600029	● 600035
1	0.2	0.77	39	2.8	3	0.49	3	0.92	● 600030	● 600036
1.2	0.2	0.97	39	3.3	3	0.69	3	1.12	● 600031	● 600037
1.4	0.25	1.11	39	3.9	3	0.76	3	1.3	● 600032	● 600038

S NIHS 06-10

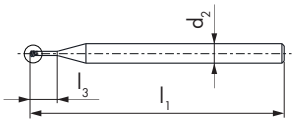
VHM CAR | < 3µm | DC | h5

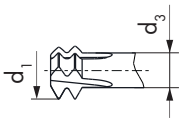
GW

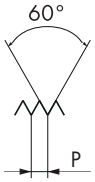
GW3017 — R10

GW3017VS — R10 — VS

GW3017VX — R10 — VX







Ø D_1 S	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			GW3017 ID	GW3017VS ID	GW3017VX ID
0.8	0.2	0.57	39	2.7	3	0.29	3	0.66 [1]	● 196210	● 194291	● 194312
0.9	0.225	0.64	39	3	3	0.33	3	0.74 [1]	● 196211	● 194292	● 194313
1	0.25	0.71	39	3.4	3	0.36	3	0.82 [1]	● 196214	● 194293	● 194314
1.2	0.25	0.91	39	4	3	0.56	3	1.02 [1]	● 196212	● 194294	● 194315
1.4	0.3	1.06	39	4.6	3	0.64	3	1.18 [1]	● 196213	● 194295	● 194316

[1] 4H5H → 4H6H = ϑ .02mm

S NIHS 06-10

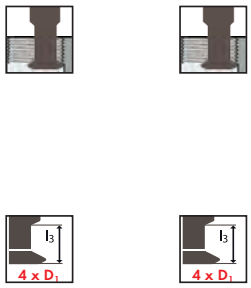
VHM CAR | < 3µm | DC | h5

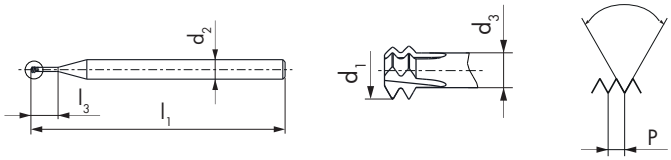
GW

GW3019 | GW3019VS

GW3019 — R10

GW3019VS — R10 — VS





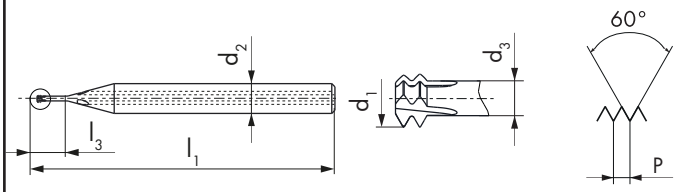
Ø D_1 S	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h5 mm	d_3 mm			GW3019 ID	GW3019VS ID
0.8	0.2	0.57	39	3.5	3	0.29	3	0.66 [1]	● 196270	● 194298
0.9	0.225	0.64	39	3.9	3	0.33	3	0.74 [1]	● 196271	● 194299
1	0.25	0.71	39	4.4	3	0.36	3	0.82 [1]	● 196274	● 194300
1.2	0.25	0.91	39	5.2	3	0.56	3	1.02 [1]	● 196272	● 194301
1.4	0.3	1.06	39	6	3	0.64	3	1.18 [1]	● 196273	● 194302

[1] 4H5H → 4H6H = ⌀ .02mm

GWi

GWi3065VS | R10 | VS

GWi3065VX | R10 | VX



Ø D_1 M	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			GWi3065VS ID	GWi3065VX ID
0.8	0.2	0.57	40	1.9	3	0.29	3	0.66[1]	● 206486	● 206502
0.9	0.225	0.64	40	2.1	3	0.33	3	0.74[1]	● 206487	● 206503
1	0.25	0.71	40	2.4	3	0.36	3	0.75	● 206488	● 206504
1.2	0.25	0.91	40	2.8	3	0.56	3	0.95	● 206489	● 206505
1.4	0.3	1.06	40	3.2	4	0.64	3	1.1	● 206490	● 206506
1.6	0.35	1.2	40	3.7	4	0.71	3	1.25	● 206491	● 206507
1.8	0.35	1.4	40	4.1	4	0.91	3	1.45	● 206492	● 206508
2	0.4	1.54	40	4.6	4	0.98	3	1.6	● 206493	● 206509
2.3	0.4	1.84	40	5.2	4	1.28	3	1.9	● 206494	● 206510
2.5	0.45	1.98	40	5.6	4	1.35	3	2.05	● 206495	● 206511
2.6	0.45	2.08	40	5.8	4	1.45	3	2.15	● 206496	● 206512

NEW NEW

2 x D_1 2 x D_1

[1] 4H5H → 4H6H = ϑ .02mm

M ISO DIN 14 ISO DIN 13

VHM CAR | < 3µm | DC | h6

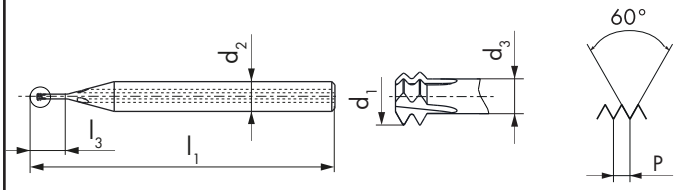
GWi

GWi3066VS

VS

GWi3066VX

VX



GWi3066VS	GWi3066VX		
			

Ø D_1 M	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			ID	ID
0.8	0.2	0.57	40	2.3	3	0.29	3	0.66[1]	● 186029	● 187325
0.9	0.225	0.64	40	2.6	3	0.33	3	0.74[1]	● 186030	● 187326
1	0.25	0.71	40	2.9	3	0.36	3	0.75	● 186031	● 187327
1.2	0.25	0.91	40	3.4	3	0.56	3	0.95	● 186032	● 187328
1.4	0.3	1.06	40	3.9	4	0.64	3	1.1	● 186033	● 187329
1.6	0.35	1.2	40	4.5	4	0.71	3	1.25	● 186034	● 187330
1.8	0.35	1.4	40	5	4	0.91	3	1.45	● 186035	● 187331
2	0.4	1.54	40	5.6	4	0.98	3	1.6	● 186036	● 187332
2.3	0.4	1.84	40	6.3	4	1.28	3	1.9	● 194324	● 194334
2.5	0.45	1.98	40	6.9	4	1.35	3	2.05	● 186037	● 187333
2.6	0.45	2.08	40	7.1	4	1.45	3	2.15	● 194325	● 194335

[1] 4H5H → 4H6H = ⌀ .02mm

VHM CAR | < 3µm | DC | h6

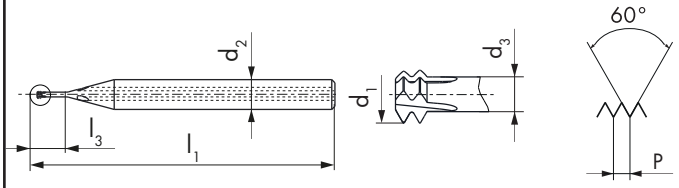
GWi

GWi3067VS | GWi3067VX

GWi3067VS   

GWi3067VX   



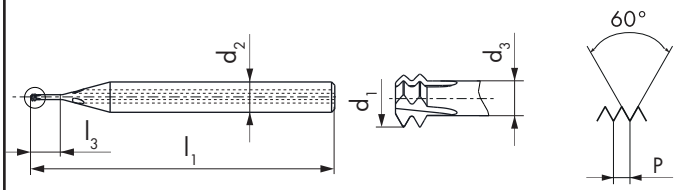
Ø D_1 M	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			ID	ID
1.4	0.3	1.06	40	4.6	4	0.64	3	1.1	186443	187453
1.6	0.35	1.2	40	5.3	4	0.71	3	1.25	186444	187454
1.8	0.35	1.4	40	5.9	4	0.91	3	1.45	186445	187455
2	0.4	1.54	40	6.6	4	0.98	3	1.6	186446	187456
2.3	0.4	1.84	40	7.5	4	1.28	3	1.9	194327	194337
2.5	0.45	1.98	40	8.1	4	1.35	3	2.05	186447	187457
2.6	0.45	2.08	40	8.4	4	1.45	3	2.15	194328	194338

MF ISO DIN 13

VHM CAR | < 3µm | DC | h6

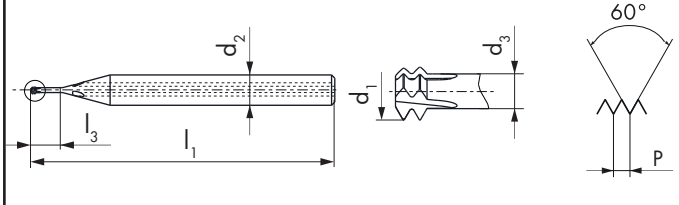
GWi

GWi3065VS	R10	VS	
GWi3065VX	R10	VX	
GWi3066VS	R10	VS	
GWi3066VX	R10	VX	



	GWi3065VS	GWi3065VX	GWi3066VS	GWi3066VX
	NEW	NEW		
				
				

Ø D_1 MF	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			ID	ID
2	0.2	1.77	40	4.3	4	1.49	3	1.8	206518	206526
2	0.25	1.71	40	4.4	4	1.36	3	1.75	206519	206527
2.5	0.2	2.27	40	5.3	4	1.99	3	2.3	206520	206528
2.5	0.25	2.21	40	5.4	4	1.86	3	2.25	206521	206529



Ø D_1 MF	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			ID	ID
2	0.2	1.77	40	5.3	4	1.49	3	1.8	186086	187346
2	0.25	1.71	40	5.4	4	1.36	3	1.75	186087	187347
2.5	0.2	2.27	40	6.6	4	1.99	3	2.3	186088	187348
2.5	0.25	2.21	40	6.6	4	1.86	3	2.25	186089	187349

MF ISO DIN 13

VHM CAR | < 3µm | DC | h6

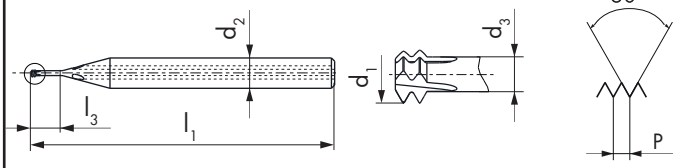
GWi

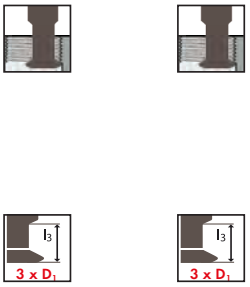
GWi3067VS

VS

GWi3067VX

VX





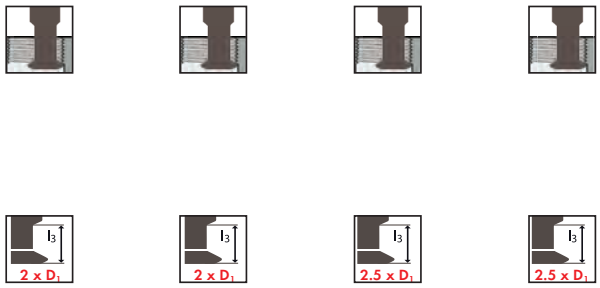
Ø D_1 MF	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			ID	ID
2	0.2	1.77	40	6.3	4	1.49	3	1.8	186488	187470
2	0.25	1.71	40	6.4	4	1.36	3	1.75	186489	187471
2.5	0.2	2.27	40	7.8	4	1.99	3	2.3	186490	187472
2.5	0.25	2.21	40	7.9	4	1.86	3	2.25	186491	187473

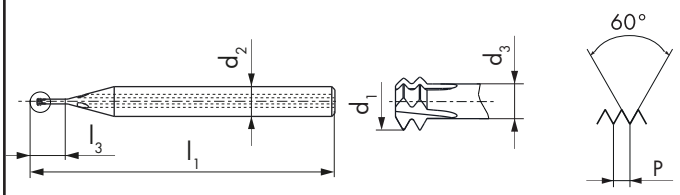
UNC ASME B1.1

VHM CAR | < 3µm | DC | h6

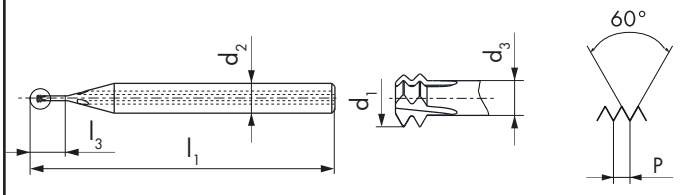
GWi

GWi3065VS	R10	VS	
GWi3065VX	R10	VX	
GWi3066VS	R10	VS	
GWi3066VX	R10	VX	





Ø D1 UNC	P TPI	d1 mm	l1 mm	l3 mm	d2 h6 mm	d3 mm			ID	ID
2	56	1.66	40	5	4	1.02	3	1.75	● 206534	● 206543
3	48	1.91	40	5.8	4	1.17	3	2	● 206535	● 206544



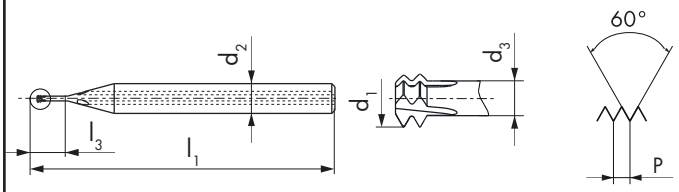
Ø D1 UNC	P TPI	d1 mm	l1 mm	l3 mm	d2 h6 mm	d3 mm			ID	ID
2	56	1.66	40	6.1	4	1.02	3	1.75	● 186128	● 187362
3	48	1.91	40	7	4	1.17	3	2	● 186129	● 187363

UNF ASME B1.1

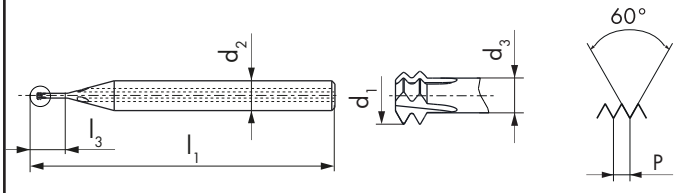
VHM CAR | < 3µm | DC | h6

GWi

GWi3065VS	R10	VS	
GWi3065VX	R10	VX	
GWi3066VS	R10	VS	
GWi3066VX	R10	VX	



Ø D_1 UNF	P TPI	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			GWi3065VS ID	GWi3065VX ID	GWi3066VS ID	GWi3066VX ID
0	80	1.15	40	3.5	4	0.71	3	1.2	● 206552	● 206562		
1	72	1.44	40	4.2	4	0.95	3	1.5	● 206553	● 206563		
2	64	1.73	40	4.9	4	1.17	3	1.8	● 206554	● 206564		



Ø D_1 UNF	P TPI	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			GWi3065VS ID	GWi3065VX ID	GWi3066VS ID	GWi3066VX ID
0	80	1.15	40	4.3	4	0.71	3	1.2			● 186167	● 187375
1	72	1.44	40	5.1	4	0.95	3	1.5			● 186168	● 187376
2	64	1.73	40	6	4	1.17	3	1.8			● 186169	● 187377

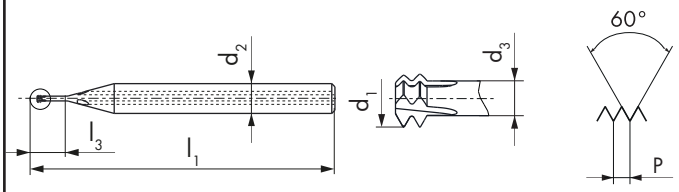
S NIHS 06-10

VHM CAR | < 3µm | DC | h6

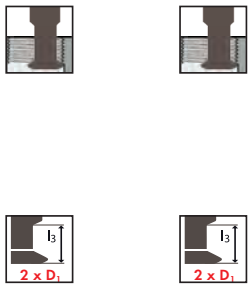
GWi

GWi3065VS R10 VS

GWi3065VX R10 VX



GWi3065VS **GWi3065VX**



Ø D_1 S	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			ID	ID
0.8	**0.2**	0.57	40	1.9	3	0.29	3	0.66[1]	● **206572**	● **206577**
0.9	**0.225**	0.64	40	2.1	3	0.33	3	0.74[1]	● **206573**	● **206578**
1	**0.25**	0.71	40	2.4	3	0.36	3	0.82[1]	● **206574**	● **206579**
1.2	**0.25**	0.91	40	2.8	3	0.56	3	1.02[1]	● **206575**	● **206580**
1.4	**0.3**	1.06	40	3.2	4	0.64	3	1.18[1]	● **206576**	● **206581**

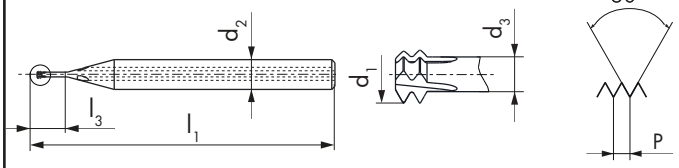
[1] 4H5H → 4H6H = ⌀ .02mm

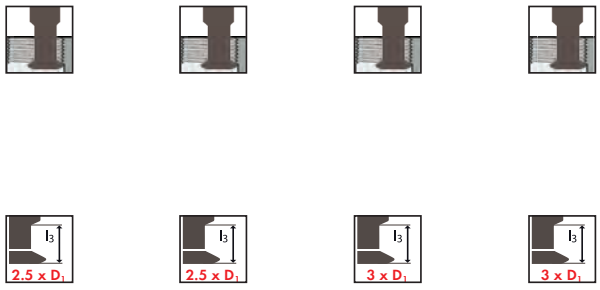
S NIHS 06-10

VHM CAR | < 3µm | DC | h6

GWi

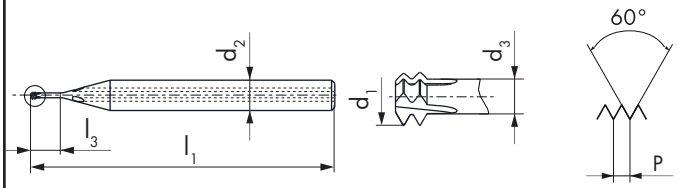
GWi3066VS	R10	VS	
GWi3066VX	R10	VX	
GWi3067VS	R10	VS	
GWi3067VX	R10	VX	





Ø D_1 S	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			GWi3066VS ID	GWi3066VX ID	GWi3067VS ID	GWi3067VX ID
0.8	0.2	0.57	40	2.3	3	0.29	3	0.66[1]	● 194319	● 194329		
0.9	0.225	0.64	40	2.6	3	0.33	3	0.74[1]	● 194320	● 194330		
1	0.25	0.71	40	2.9	3	0.36	3	0.82[1]	● 194321	● 194331		
1.2	0.25	0.91	40	3.4	3	0.56	3	1.02[1]	● 194322	● 194332		
1.4	0.3	1.06	40	3.9	4	0.64	3	1.18[1]	● 194323	● 194333		

[1] 4H5H → 4H6H = 0 .02mm



Ø D_1 S	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			ID	ID
1.4	0.3	1.06	40	4.6	4	0.64	3	1.18[1]	● 194326	● 194336

[1] 4H5H → 4H6H = 0 .02mm

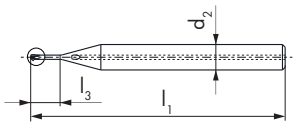
M ISO DIN 14 ISO DIN 13

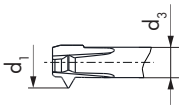
VHM CAR | < 3µm | DC | h6

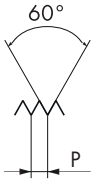
GWi

GWi5065VS









GWi5065VS

NEW

LH-rot.

Ø D_1 M	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			ID
0.8	0.2	0.55	40	1.9	3	0.27	1	0.58 [1]	● 206582
0.9	0.225	0.62	40	2.2	3	0.31	1	0.65 [1]	● 206583
1	0.25	0.66	40	2.4	3	0.31	1	0.7 [1]	● 206584
1.2	0.25	0.86	40	2.8	3	0.51	1	0.9 [1]	● 206585
1.4	0.3	1.03	40	3.3	4	0.61	1	1.05 [1]	● 206586
1.6	0.35	1.16	40	3.8	4	0.67	1	1.19 [1]	● 206587
1.8	0.35	1.36	40	4.2	4	0.87	1	1.39 [1]	● 206588
2	0.4	1.5	40	4.6	4	0.94	1	1.54 [1]	● 206589
2.5	0.45	1.94	40	5.7	4	1.31	1	1.98 [1]	● 206590

[1] Tol. = ⌀ /0.02mm

GWi

	GWi5066VS	GWi5067VS		
				

GWi5066VS 

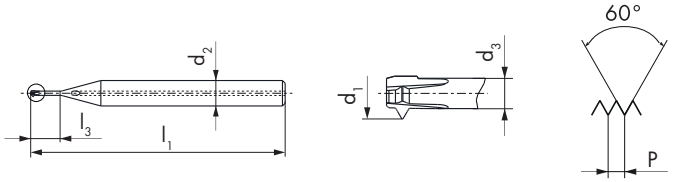
GWi5067VS 

LH-rot. LH-rot.

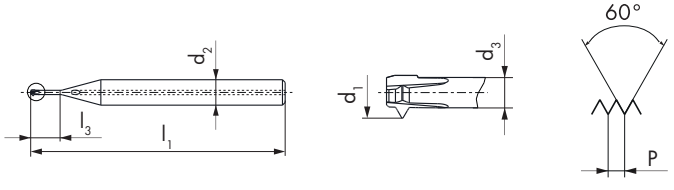
 

2.5 x D_1 3 x D_1



Ø D_1 M	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			ID
0.8	0.2	0.55	40	2.3	3	0.27	1	0.58 [1]	● 189165
0.9	0.225	0.62	40	2.6	3	0.31	1	0.65 [1]	● 189166
1	0.25	0.66	40	2.9	3	0.31	1	0.7 [1]	● 189167
1.2	0.25	0.86	40	3.4	3	0.51	1	0.9 [1]	● 189168
1.4	0.3	1.03	40	4	4	0.61	1	1.05 [1]	● 189169
1.6	0.35	1.16	40	4.6	4	0.67	1	1.19 [1]	● 189170
1.8	0.35	1.36	40	5.1	4	0.87	1	1.39 [1]	● 189171
2	0.4	1.5	40	5.6	4	0.94	1	1.54 [1]	● 189172
2.5	0.45	1.94	40	7	4	1.31	1	1.98 [1]	● 189173

[1] Tol. = ϑ /0.02mm



Ø D_1 M	P mm	d_1 mm	l_1 mm	l_3 mm	d_2 h6 mm	d_3 mm			ID
1.4	0.3	1.03	40	4.7	4	0.61	1	1.05 [1]	● 189174
1.6	0.35	1.16	40	5.4	4	0.67	1	1.19 [1]	● 189175
1.8	0.35	1.36	40	6	4	0.87	1	1.39 [1]	● 189176
2	0.4	1.5	40	6.6	4	0.94	1	1.54 [1]	● 189177
2.5	0.45	1.94	40	8.2	4	1.31	1	1.98 [1]	● 189178

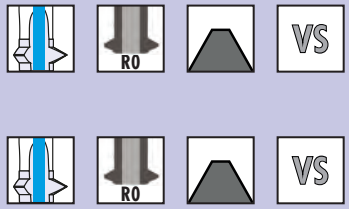
[1] Tol. = ϑ /0.02mm

VHM CAR | < 3µm | DC | h6

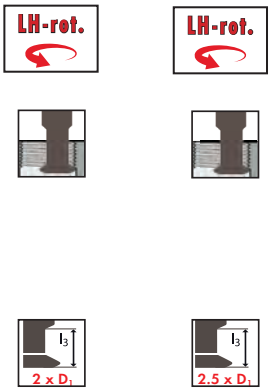
GWi

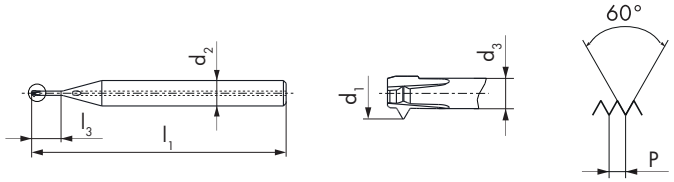
GWi5065VS

GWi5066VS



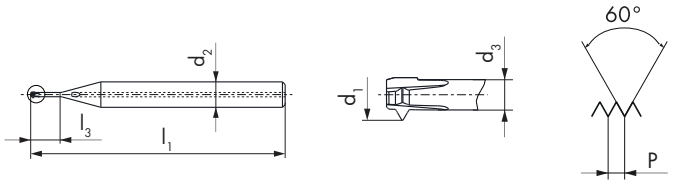
GWi5065VS	GWi5066VS		





Ø D1 S	P mm	d1 mm	l1 mm	l3 mm	d2 h6 mm	d3 mm			ID
0.8	0.2	0.55	40	1.9	3	0.27	1	0.59 [1]	206601
0.9	0.225	0.62	40	2.2	3	0.31	1	0.67 [1]	206602
1	0.25	0.66	40	2.4	3	0.31	1	0.74 [1]	206603
1.2	0.25	0.86	40	2.8	3	0.51	1	0.94 [1]	206604
1.4	0.3	1.03	40	3.3	4	0.61	1	1.09 [1]	206605

[1] Tol. = ϑ /0.01mm

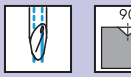


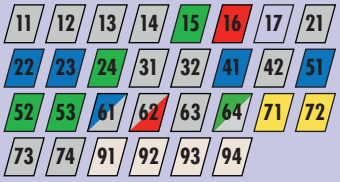
Ø D1 S	P mm	d1 mm	l1 mm	l3 mm	d2 h6 mm	d3 mm			ID
0.8	0.2	0.55	40	2.3	3	0.27	1	0.59 [1]	189204
0.9	0.225	0.62	40	2.6	3	0.31	1	0.67 [1]	189205
1	0.25	0.66	40	2.9	3	0.31	1	0.74 [1]	189206
1.2	0.25	0.86	40	3.4	3	0.51	1	0.94 [1]	189207
1.4	0.3	1.03	40	4	4	0.61	1	1.09 [1]	189208

[1] Tol. = ϑ /0.01mm

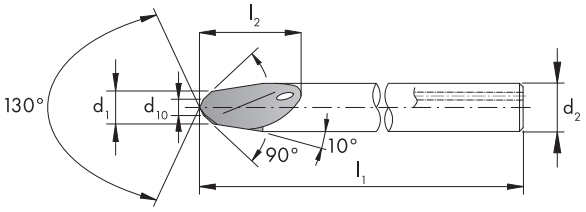
C

C315VS





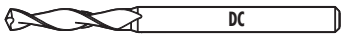
C315VS



Ø d_1	l_1 mm	l_2 mm	d_2 h6 mm	d_{10} mm		ID
1.4	40	6	3	0.5	2	● 182872
2	40	6.2	3	1	2	● 182873
3	40	6.3	3	1.5	2	● 182874

Solid carbide twist drills for GWi5000 / GWi6000

VHM CAR



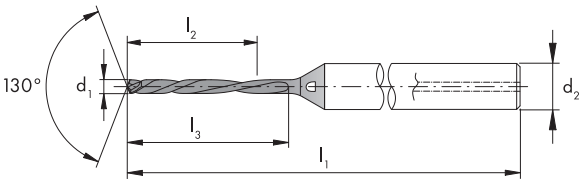
h6

FZ

FZ315VS


VS

11 12 13 14 15 16 17 21
22 23 24 31 32 41 42 51
52 53 61 62 63 64 71 72
73 74 91 92 93 94



FZ315VS			
			

Ø d_1	D_1 mm	l_1 mm	l_2 mm	l_3 mm	d_2 h6 mm		ID
0.58	M0.8	42	4.6	5.7	3	2	● 182863
0.59	S0.8	42	4.7	5.8	3	2	● 188023
0.65	M0.9	45	5.2	6.4	3	2	● 182864
0.67	S0.9	45	5.4	6.6	3	2	● 188024
0.7	M1	45	5.6	6.9	3	2	● 182865
0.74	S1	45	5.9	7.3	3	2	● 188025
0.9	M1.2	45	7.2	8.8	3	2	● 182866
0.94	S1.2	48	7.5	9.2	3	2	● 188026
1.05	M1.4	48	8.4	10.3	3	2	● 182867
1.09	S1.4	48	8.7	10.7	3	2	● 188027
1.19	M1.6	48	9.5	11.7	3	2	● 182868
1.39	M1.8	52	11.1	13.6	4	2	● 182869
1.54	M2	55	12.3	15.1	4	2	● 182870
1.98	M2.5	55	15.8	19.4	4	2	● 182871

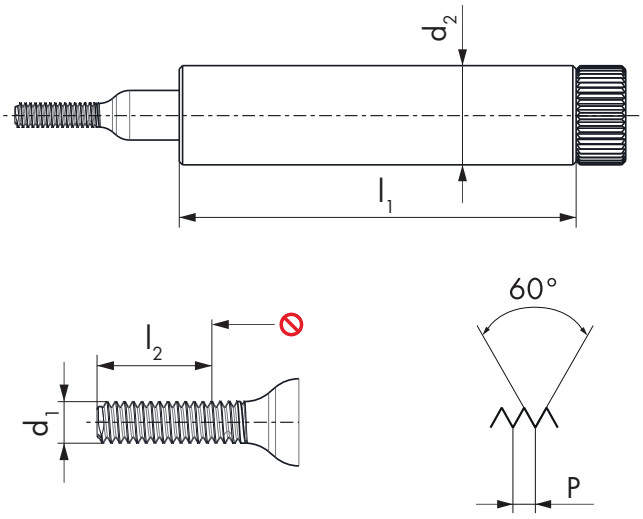

DN5701-1
DN5701-1
DN5701-2
DC
THREADING SOLUTIONS

GAUGES IN CERAMIC
ON REQUEST

DC®

THREADING SOLUTIONS

nano



					DN01 Go	DN02 NoGo	DN01 Go	DN02 NoGo
					4H	4H	5H	5H
Ø d_1 M	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0.3	0.08	24	0.9	6	● 192778	● 192786		
0.35	0.09	24	1.05	6	● 192779	● 192787		
0.4	0.1	24	1.2	6	● 192780	● 192788		
0.5	0.125	24	1.5	6	● 192781	● 192789		
0.6	0.15	24	1.8	6	● 192782	● 192790		
0.7	0.175	24	2.1	6	● 192783	● 192791		
0.8	0.2	24	2.4	6	● 192784	● 192792		
0.9	0.225	24	2.7	6	● 192785	● 192793		
1	0.25	24	3	6	● 191113	● 191127	● 191421	● 191424
1.2	0.25	24	3.6	6	● 191114	● 191128	● 191422	● 191425
1.4	0.3	24	4.2	6	● 191115	● 191129	● 191423	● 191426

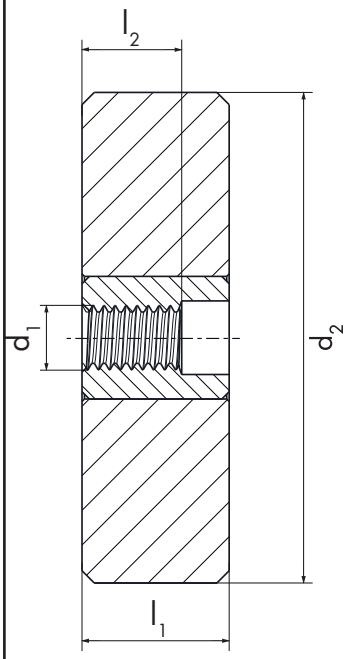
							6H	6H
Ø d_1 M	P mm	l_1 mm	l_2 Go mm	d_2 mm			ID	ID
1.6	0.35	24	4.5	6			● 191427	● 191433
1.8	0.35	24	4.5	6			● 191428	● 191434
2	0.4	24	4.5	6			● 191429	● 191435
2.3	0.4	24	4.5	6			● 191430	● 191436
2.5	0.45	24	4.5	6			● 191431	● 191437
2.6	0.45	24	4.5	6			● 191432	● 191438

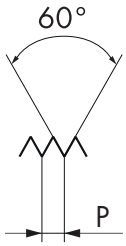
All nano thread plug gauges are SCS-certified and the paid certificate is available on request.

M ISO DIN 14 / ISO DIN 13
DC SWISS NI589 / DZ04: ISO 1502 / DZ14: ISO 1502, DC SWISS NI590

PHYN. KL

nano





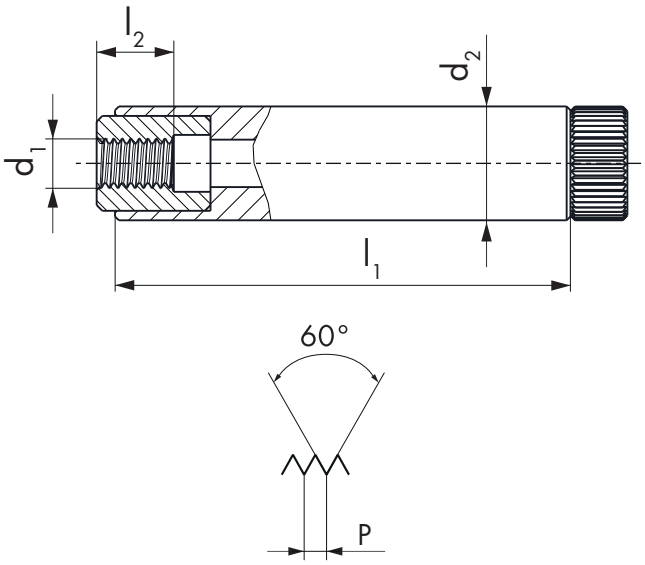
					DZ04 Go	DZ14 NoGo	DZ04 Go	DZ14 NoGo
					5h	5h	6h	6h
Ø d_1 M	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0.3	0.08	6	0.45	20	● 192842	● 192850		
0.35	0.09	6	0.53	20	● 192843	● 192851		
0.4	0.1	6	0.6	20	● 192844	● 192852		
0.5	0.125	6	0.75	20	● 192845	● 192853		
0.6	0.15	6	0.9	20	● 192846	● 192854		
0.7	0.175	6	1.05	20	● 192847	● 192855		
0.8	0.2	6	1.2	20	● 192848	● 192856		
0.9	0.225	6	1.35	20	● 192849	● 192857		
1	0.25	6	1.5	20			● 191473	● 191476
1.2	0.25	6	1.8	20			● 191474	● 191477
1.4	0.3	6	2.1	20			● 191475	● 191478
							6g	6g
Ø d_1 M	P mm	l_1 mm	l_2 Go mm	d_2 mm			ID	ID
1.6	0.35	6	2.4	20			● 191479	● 191485
1.8	0.35	6	2.7	20			● 191480	● 191486
2	0.4	6	3	20			● 191481	● 191487
2.3	0.4	6	3.45	20			● 191482	● 191488
2.5	0.45	6	3.75	20			● 191483	● 191489
2.6	0.45	6	3.9	20			● 191484	● 191490

All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges.
The paid certificate is available on request.

M ISO DIN 14 / ISO DIN 13
DC SWISS NI589 / DN04: ISO 1502 / DN14: ISO 1502, DC SWISS NI590

PHYN. KL

nano



	DN04 Go	DN14 NoGo	DN04 Go	DN14 NoGo
	5h	5h	6h	6h
Ø d_1 M	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0.3	0.08	24	0.45	6	● 192800	● 192808		
0.35	0.09	24	0.53	6	● 192801	● 192809		
0.4	0.1	24	0.6	6	● 192802	● 192810		
0.5	0.125	24	0.75	6	● 192803	● 192811		
0.6	0.15	24	0.9	6	● 192804	● 192812		
0.7	0.175	24	1.05	6	● 192805	● 192813		
0.8	0.2	24	1.2	6	● 192806	● 192814		
0.9	0.225	24	1.35	6	● 192807	● 192815		
1	0.25	24	1.5	6			● 191447	● 191450
1.2	0.25	24	1.8	6			● 191448	● 191451
1.4	0.3	24	2.1	6			● 191449	● 191452

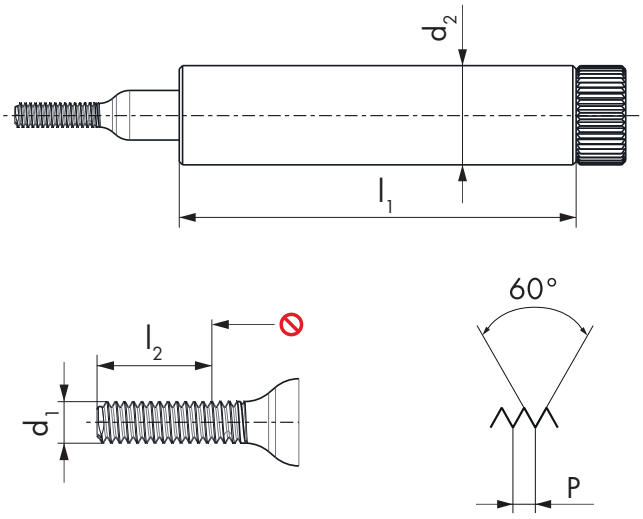
							6g	6g
Ø d_1 M	P mm	l_1 mm	l_2 Go mm	d_2 mm			ID	ID
1.6	0.35	24	2.4	6			● 191453	● 191459
1.8	0.35	24	2.7	6			● 191454	● 191460
2	0.4	24	3	6			● 191455	● 191461
2.3	0.4	24	3.45	6			● 191456	● 191462
2.5	0.45	24	3.75	6			● 191457	● 191463
2.6	0.45	24	3.9	6			● 191458	● 191464

All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges. The paid certificate is available on request.

MF ISO DIN 13 ISO 1502

VHM CAR

nano



DN01 Go	DN02 NoGo	DN01 Go	DN02 NoGo
4H	4H	6H	6H

Ø d_1 MF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1.4	0.2	24	4.2	6	191116	191130		
1.6	0.2	24	3	6	191117	191131		
1.8	0.2	24	3	6	191118	191132		
2	0.2	24	3	6	191119	191133		
2	0.25	24	3	6	192794	192797		
2.2	0.2	24	3	6	191120	191134		
2.2	0.25	24	3	6	191121	191135		
2.3	0.2	24	3	6	191122	191136		
2.3	0.25	24	3	6	191123	191137		
2.5	0.2	24	3	6	191124	191138		
2.5	0.25	24	3	6	191125	191139		
2.5	0.35	24	4.5	6			192795	192798
2.6	0.35	24	4.5	6			192796	192799

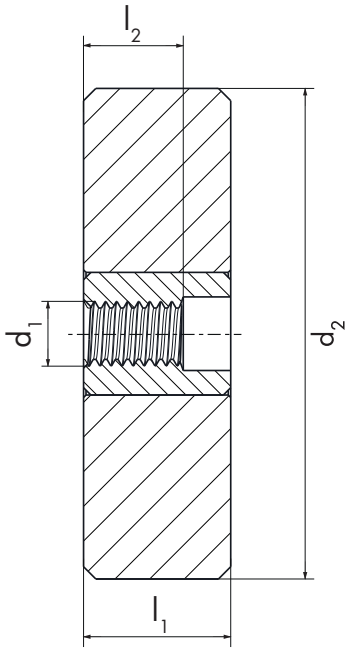
All nano thread plug gauges are SCS-certified and the paid certificate is available on request.

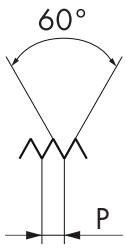
MF

ISO DIN 13
DZ04: ISO 1502 / DZ14: ISO 1502, DC SWISS NI590

PHYN. KL

nano





DZ04 Go	DZ14 NoGo	DZ04 Go	DZ14 NoGo

4h	4h	6h	6h

Ø d_1 MF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1.4	0.2	6	2.1	20	194887	194888	192858	192871
1.6	0.2	6	1.8	20	191201	191215	192859	192872
1.8	0.2	6	1.8	20	191202	191216	192860	192873
2	0.2	6	1.8	20	190711	190710	192861	192874
2	0.25	6	2.25	20	194872	190690	192862	192875
2.2	0.2	6	1.8	20	191204	191218	192863	192876
2.2	0.25	6	2.25	20	191205	191219	192864	192877
2.3	0.2	6	1.8	20	191206	191220	192865	192878
2.3	0.25	6	2.25	20	191207	191221	192866	192879
2.5	0.2	6	1.8	20	191208	191222	192867	192880
2.5	0.25	6	2.25	20	194873	191223	192868	192881

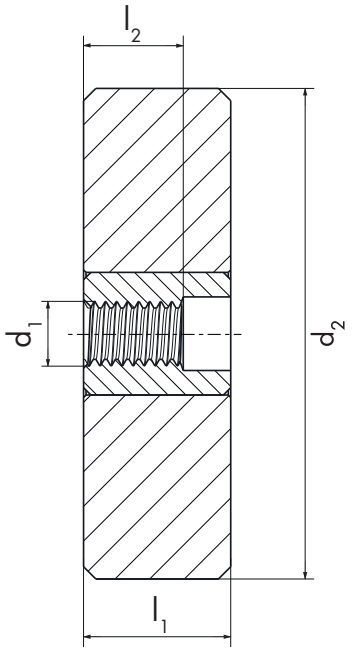
All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges.
The paid certificate is available on request.

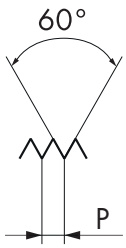
MF

ISO DIN 13
DZ04: ISO 1502 / DZ14: ISO 1502, DC SWISS NI590

PHYN. KL

nano





DZ04 Go	DZ14 NoGo		

					6g	6g
Ø d_1 MF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
1.6	0.2	6	1.8	20	● 191229	● 191243
1.8	0.2	6	1.8	20	● 191230	● 191244
2	0.2	6	1.8	20	● 191231	● 191245
2	0.25	6	2.25	20	● 194876	● 194877
2.2	0.2	6	1.8	20	● 191232	● 191246
2.2	0.25	6	2.25	20	● 191233	● 191247
2.3	0.2	6	1.8	20	● 191234	● 191248
2.3	0.25	6	2.25	20	● 191235	● 191249
2.5	0.2	6	1.8	20	● 191236	● 191250
2.5	0.25	6	2.25	20	● 191237	● 191251
2.5	0.35	6	3.75	20	● 192869	● 192882
2.6	0.35	6	3.9	20	● 192870	● 192883

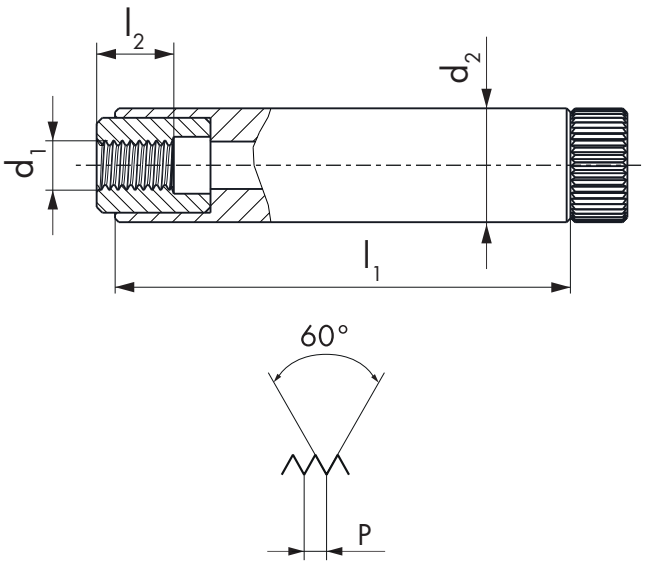
All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges. The paid certificate is available on request.

MF

ISO DIN 13
DN04: ISO 1502 / DN14: ISO 1502, DC SWISS NI590

PHYN. KL

nano



DN04 Go	DN14 NoGo	DN04 Go	DN14 NoGo
4h	4h	6h	6h

Ø d_1 MF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1.4	0.2	24	2.1	6	194885	194886	192816	192829
1.6	0.2	24	1.8	6	191145	191159	192817	192830
1.8	0.2	24	1.8	6	191146	191160	192818	192831
2	0.2	24	1.8	6	191147	191161	192819	192832
2	0.25	24	2.25	6	194870	194871	192820	192833
2.2	0.2	24	1.8	6	191148	191162	192821	192834
2.2	0.25	24	2.25	6	191149	191163	192822	192835
2.3	0.2	24	1.8	6	191150	191164	192823	192836
2.3	0.25	24	2.25	6	191151	191165	192824	192837
2.5	0.2	24	1.8	6	191152	191166	192825	192838
2.5	0.25	24	2.25	6	191153	191167	192826	192839

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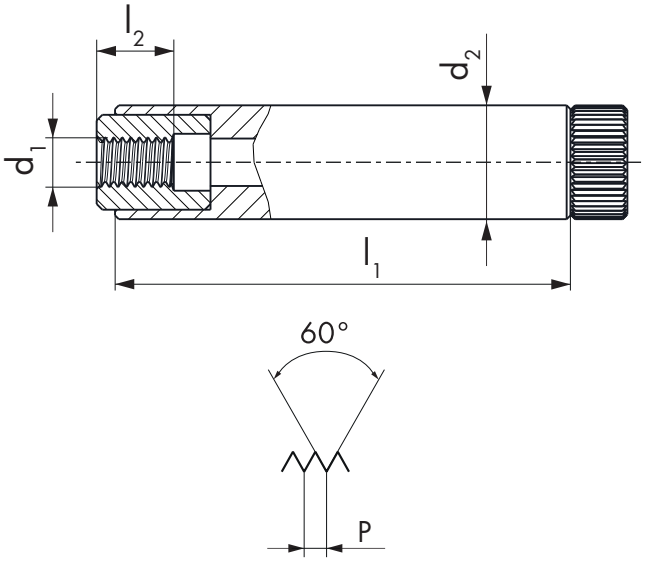
MF

ISO DIN 13
DN04: ISO 1502 / DN14: ISO 1502, DC SWISS NI590

PHYN. KL

nano



DN04 Go	DN14 NoGo		
			
6g	6g		

Ø d_1 MF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
1.6	0.2	24	1.8	6	191173	191187
1.8	0.2	24	1.8	6	191174	191188
2	0.2	24	1.8	6	191175	191189
2	0.25	24	2.25	6	194874	194875
2.2	0.2	24	1.8	6	191176	191190
2.2	0.25	24	2.25	6	191177	191191
2.3	0.2	24	1.8	6	191178	191192
2.3	0.25	24	2.25	6	191179	191193
2.5	0.2	24	1.8	6	191180	191194
2.5	0.25	24	2.25	6	191181	191195
2.5	0.35	24	3.75	6	192827	192840
2.6	0.35	24	3.9	6	192828	192841

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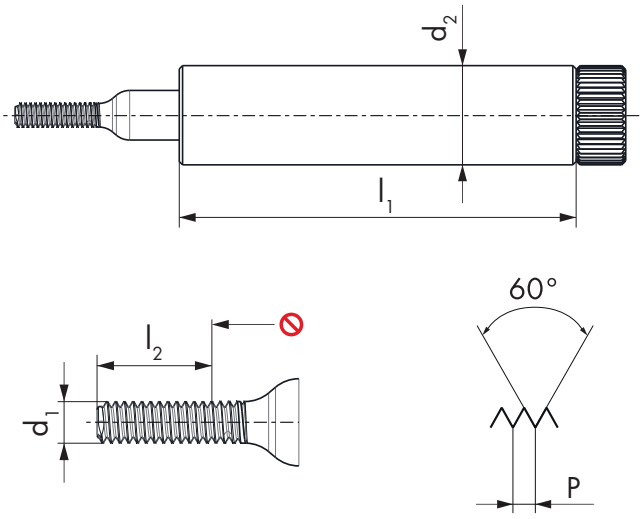
UNC, UNF ASME B1.1 ASME B1.2

VHM CAR

nano



	DN01 Go	DN02 NoGo	DN01 Go	DN02 NoGo
				
	2B	2B	3B	3B

Ø d_1 UNC	P TPI	Ø d_1 mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1	64	1.854	24	6.35	6	● 191577	● 191580	● 191583	● 191586
2	56	2.184	24	6.35	6	● 191578	● 191581	● 191584	● 191587
3	48	2.515	24	6.35	6	● 191579	● 191582	● 191585	● 191588

Ø d_1 UNF	P TPI	Ø d_1 mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0	80	1.524	24	4.76	6	● 191637	● 191641	● 191645	● 191649
1	72	1.854	24	4.76	6	● 191638	● 191642	● 191646	● 191650
2	64	2.184	24	4.76	6	● 191639	● 191643	● 191647	● 191651
3	56	2.515	24	4.76	6	● 191640	● 191644	● 191648	● 191652

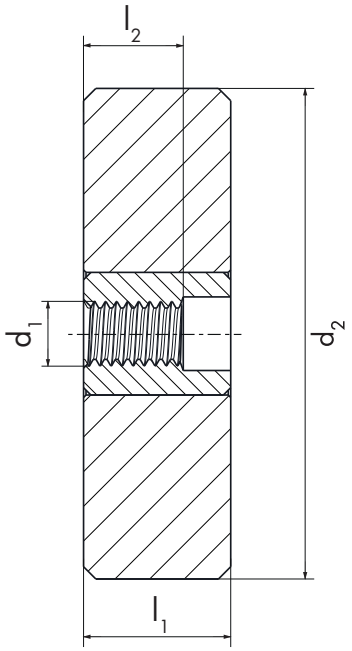
All nano thread plug gauges are SCS-certified and the paid certificate is available on request.

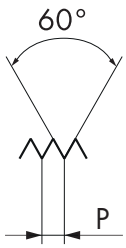
UNC, UNF

ASME B1.1
DZ04: ASME B1.2 / DZ14: ASME B1.2, DC SWISS NI590

PHYN. KL

nano





						DZ04 Go	DZ14 NoGo	DZ04 Go	DZ14 NoGo
						2A	2A	3A	3A
Ø d_1 UNC	P TPI	Ø d_1 mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1	64	1.854	6	2.78	20	● 191601	● 191604	● 191607	● 191610
2	56	2.184	6	3.28	20	● 191602	● 191605	● 191608	● 191611
3	48	2.515	6	3.77	20	● 191603	● 191606	● 191609	● 191612
Ø d_1 UNF	P TPI	Ø d_1 mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0	80	1.524	6	2.29	20	● 191669	● 191673	● 191677	● 191681
1	72	1.854	6	2.78	20	● 191670	● 191674	● 191678	● 191682
2	64	2.184	6	3.28	20	● 191671	● 191675	● 191679	● 191683
3	56	2.515	6	3.77	20	● 191672	● 191676	● 191680	● 191684

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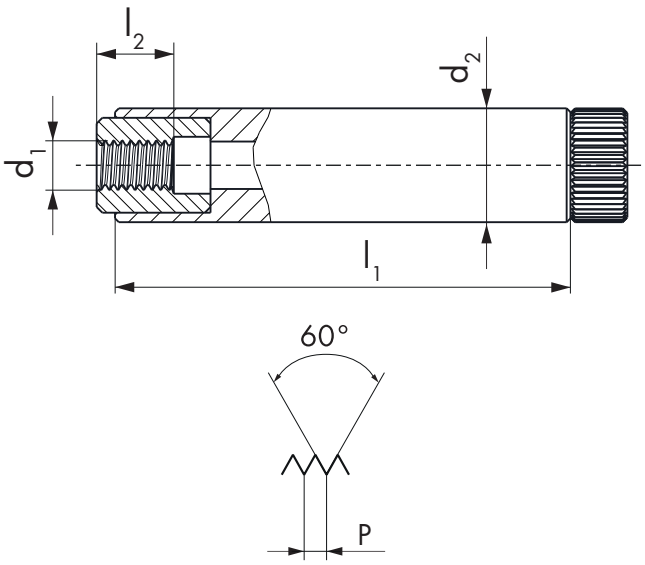
The paid certificate is available on request.

UNC, UNF

ASME B1.1
DN04: ASME B1.2 / DN14: ASME B1.2, DC SWISS NI590

PHYN. KL

nano



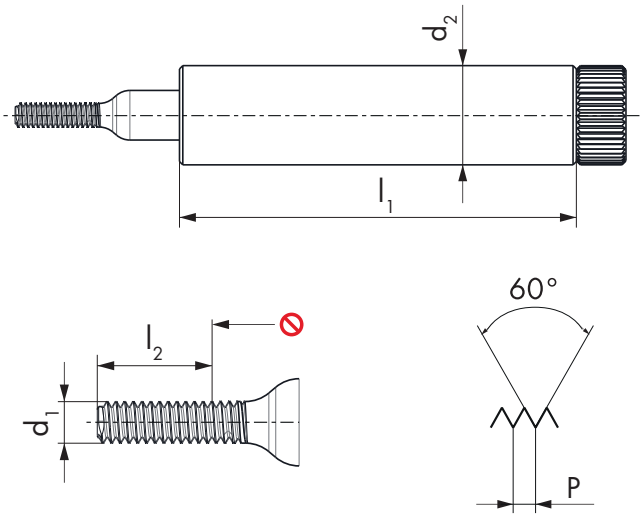
DN04 Go	DN14 NoGo	DN04 Go	DN14 NoGo
			
2A	2A	3A	3A

Ø d_1 UNC	P TPI	Ø d_1 mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1	64	1.854	24	2.78	6	● 191589	● 191592	● 191595	● 191598
2	56	2.184	24	3.28	6	● 191590	● 191593	● 191596	● 191599
3	48	2.515	24	3.77	6	● 191591	● 191594	● 191597	● 191600

Ø d_1 UNF	P TPI	Ø d_1 mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0	80	1.524	24	2.29	6	● 191653	● 191657	● 191661	● 191665
1	72	1.854	24	2.78	6	● 191654	● 191658	● 191662	● 191666
2	64	2.184	24	3.28	6	● 191655	● 191659	● 191663	● 191667
3	56	2.515	24	3.77	6	● 191656	● 191660	● 191664	● 191668

All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges.
The paid certificate is available on request.

nano



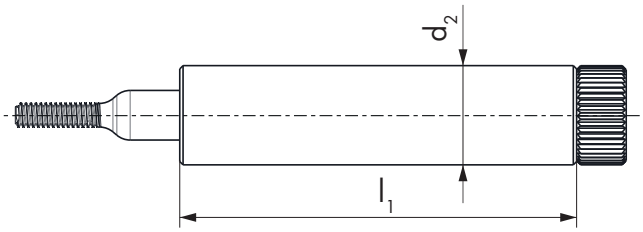
DN01 Go	DN01 Go	DN02 NoGo

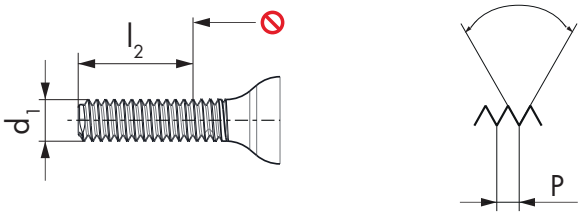
NIHS 3G | NIHS 4H | NIHS 4H/3G

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID
0.3	0.08	24	0.9	6	● 200638	● 200667	● 200698
0.35	0.09	24	1.05	6	● 200639	● 200668	● 200699
0.4	0.1	24	1.2	6	● 200640	● 200669	● 200700
0.45	0.1	24	1.35	6	● 200641	● 200670	● 200701
0.5	0.125	24	1.5	6	● 200642	● 200671	● 200702
0.55	0.125	24	1.65	6	● 200643	● 200672	● 200703
0.6	0.15	24	1.8	6	● 200644	● 200673	● 200704
0.7	0.175	24	2.1	6	● 200645	● 200674	● 200705
0.8	0.2	24	2.4	6	● 200646	● 200675	● 200706
0.9	0.225	24	2.7	6	● 200647	● 200676	● 200707
1	0.25	24	3	6	● 200648	● 200677	● 200708
1.1	0.25	24	3.3	6	● 201027	● 200678	● 201028
1.2	0.25	24	3.6	6	● 200649	● 200679	● 200709
1.3	0.3	24	3.9	6	● 201026	● 200680	● 200710
1.4	0.3	24	4.2	6	● 200650	● 200681	● 200711

All nano thread plug gauges are SCS-certified and the paid certificate is available on request.

nano





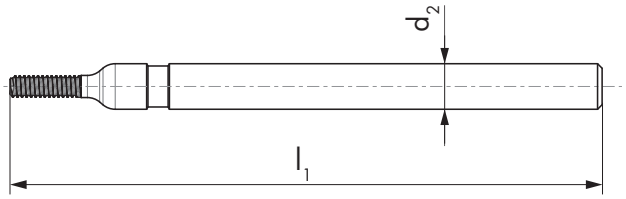
LH

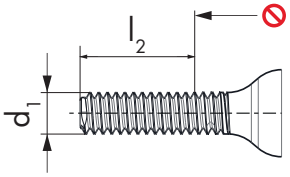
DN01 Go LH	DN01 Go LH	DN02 NoGo LH
		

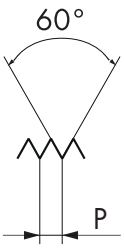
Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	NIHS 3G ID	NIHS 4H ID	NIHS 4H/3G ID
0.4	0.1	24	1.2	6	● 204319	● 204327	● 204329
0.5	0.125	24	1.5	6	● 202073	● 203195	● 203205
0.6	0.15	24	1.8	6	● 203614	● 203197	● 203207
0.7	0.175	24	2.1	6	● 201739	● 203054	● 203056
0.8	0.2	24	2.4	6	● 204321	● 203199	● 203209
0.9	0.225	24	2.7	6	● 204323	● 203201	● 203211
1	0.25	24	3	6	● 204325	● 203203	● 203213
1.2	0.25	24	3.6	6	● 204672	● 204676	● 204680
1.4	0.3	24	4.2	6	● 204674	● 204678	● 204682

All nano thread plug gauges are SCS-certified and the paid certificate is available on request.

nano





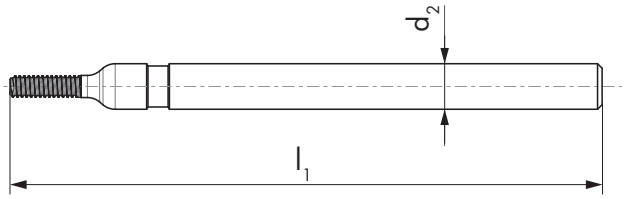


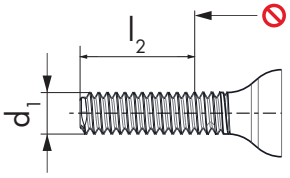
DN5701-1 Go	DN5701-1 Go	DN5701-2 NoGo
 NEW	 NEW	 NEW
NIHS 3G	NIHS 4H	NIHS 4H/3G

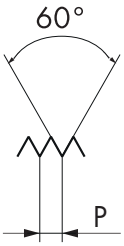
Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID
0.3	0.08	39	0.9	3	● 207782	● 207783	● 207795
0.35	0.09	39	1.05	3	● 207784	● 207785	● 207796
0.4	0.1	39	1.2	3	● 205378	● 207786	● 205380
0.5	0.125	39	1.5	3	● 202901	● 207787	● 205553
0.6	0.15	39	1.8	3	● 202249	● 205729	● 203347
0.7	0.175	39	2.1	3	● 202932	● 205581	● 205373
0.8	0.2	39	2.4	3	● 203052	● 207788	● 207797
0.9	0.225	39	2.7	3	● 203520	● 207789	● 203522
1	0.25	39	3	3	● 203541	● 207790	● 203963
1.2	0.25	39	3.6	3	● 207791	● 207792	● 207798
1.4	0.3	39	4.2	3	● 207793	● 207794	● 207799

All nano thread plug gauges are SCS-certified and the paid certificate is available on request.

nano







LH

DN5701-1 Go LH	DN5701-1 Go LH	DN5701-2 NoGo LH
 NEW	 NEW	 NEW

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	NIHS 3G ID	NIHS 4H ID	NIHS 4H/3G ID
0.4	0.1	39	1.2	3	● 207758	● 207764	● 207773
0.5	0.125	39	1.5	3	● 202219	● 207765	● 207774
0.6	0.15	39	1.8	3	● 202955	● 207766	● 205189
0.7	0.175	39	2.1	3	● 203586	● 207767	● 207776
0.8	0.2	39	2.4	3	● 207759	● 207768	● 207777
0.9	0.225	39	2.7	3	● 207760	● 207769	● 207778
1	0.25	39	3	3	● 207761	● 207770	● 207779
1.2	0.25	39	3.6	3	● 207762	● 207771	● 207780
1.4	0.3	39	4.2	3	● 207763	● 207772	● 207781

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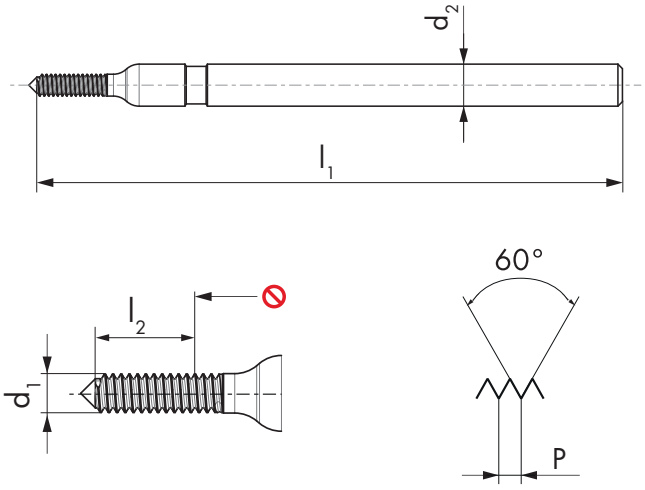
nano

DH5701-1
Go

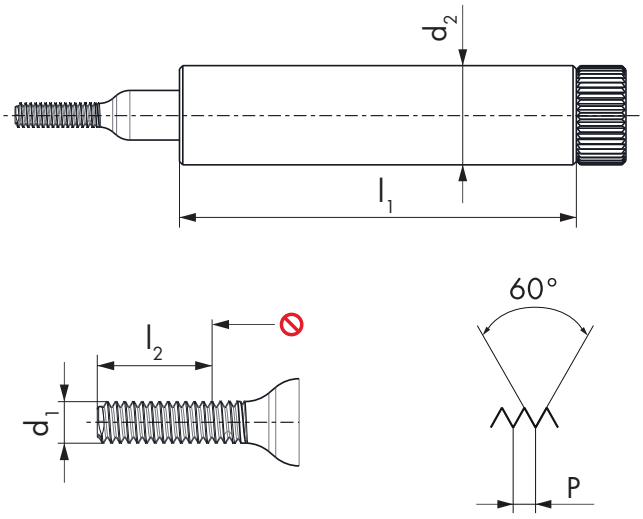
NEW



NIHS 3G

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID
0.6	0.15	39	1.8	2.8	● 207800
0.7	0.175	39	2.1	2.8	● 207801
0.8	0.2	39	2.4	2.8	● 207802
0.9	0.225	39	2.7	2.8	● 207803
1	0.25	39	3	2.8	● 207804
1.2	0.25	39	3.6	2.8	● 207805
1.4	0.3	39	4.2	2.8	● 207806

nano



DN01 Go	DN01 Go	DN02 NoGo

NIHS 3G | NIHS 4H | NIHS 4H/3G

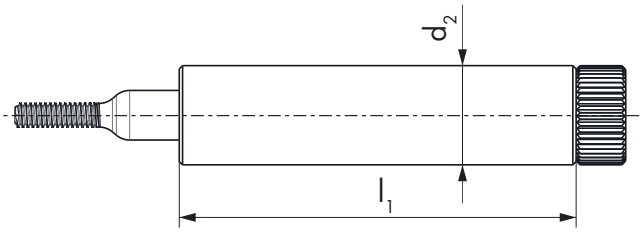
Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID
0.3	0.08	24	0.9	6	● 190733	● 193242	● 190752
0.35	0.09	24	1.05	6	● 190734	● 193243	● 190753
0.4	0.1	24	1.2	6	● 190735	● 193244	● 190754
0.5	0.125	24	1.5	6	● 190736	● 193245	● 190755
0.6	0.15	24	1.8	6	● 190737	● 193246	● 190756
0.7	0.175	24	2.1	6	● 190738	● 193247	● 190757
0.8	0.2	24	2.4	6	● 190739	● 193248	● 190758
0.9	0.225	24	2.7	6	● 190740	● 193249	● 190759
1	0.25	24	3	6	● 190741	● 193250	● 190760
1.2	0.25	24	3.6	6	● 190742	● 193251	● 190761
1.4	0.3	24	4.2	6	● 190743	● 193252	● 190762

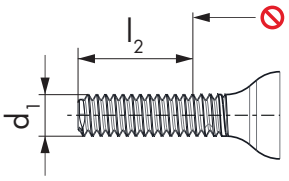
All nano thread plug gauges are SCS-certified and the paid certificate is available on request.

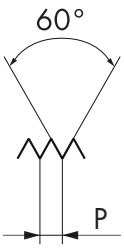
S NIHS NT
STB U758-002D-F

VHM CAR

nano







DN01 Go	DN02 NoGo		
			

NIHS NT

NIHS NT

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
0.3	0.08	24	0.9	6	190771	190790
0.35	0.09	24	1.05	6	190772	190791
0.4	0.1	24	1.2	6	190773	190792
0.5	0.125	24	1.5	6	190774	190793
0.6	0.15	24	1.8	6	190775	190794
0.7	0.175	24	2.1	6	190776	190795
0.8	0.2	24	2.4	6	190777	190796
0.9	0.225	24	2.7	6	190778	190797
1	0.25	24	3	6	190779	190798
1.2	0.25	24	3.6	6	190780	190799
1.4	0.3	24	4.2	6	190781	190800

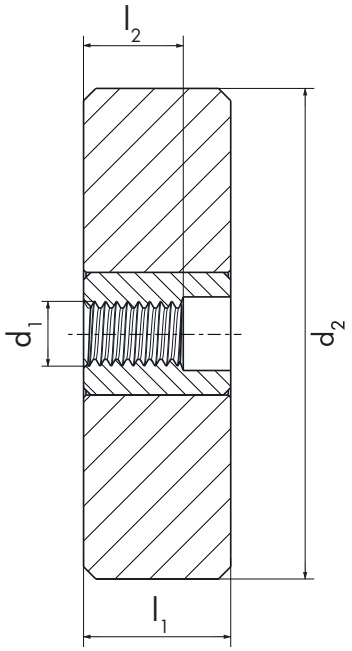
All nano thread plug gauges are SCS-certified and the paid certificate is available on request.

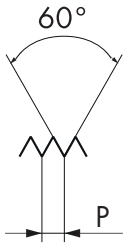
S

NIHS 06-12 / Ø < 0.5 DC SWISS NI613

PHYN. KL

nano





DZ04 Go	DZ04 Go	DZ14 NoGo	

	NIHS 4g	NIHS 5h	NIHS 5h/4g

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID
0.3	0.08	6	0.45	20	● 200795	● 200818	● 200848
0.35	0.09	6	0.53	20	● 200796	● 200819	● 200849
0.4	0.1	6	0.6	20	● 200797	● 200820	● 200850
0.45	0.1	6	0.68	20	● 200798	● 200821	● 200851
0.5	0.125	6	0.75	20	● 200799	● 200822	● 200852
0.55	0.125	6	0.83	20	● 200800	● 200823	● 200853
0.6	0.15	6	0.9	20	● 200801	● 200824	● 200854
0.7	0.175	6	1.05	20	● 200802	● 200825	● 200855
0.8	0.2	6	1.2	20	● 200803	● 200826	● 200856
0.9	0.225	6	1.35	20	● 200804	● 200827	● 200857
1	0.25	6	1.5	20	● 200805	● 200828	● 200858
1.1	0.25	6	1.65	20	● 200806	● 201030	● 201032
1.2	0.25	6	1.8	20	● 200807	● 200829	● 200859
1.3	0.3	6	1.95	20	● 200808	● 200830	● 200860
1.4	0.3	6	2.1	20	● 200809	● 200831	● 200861

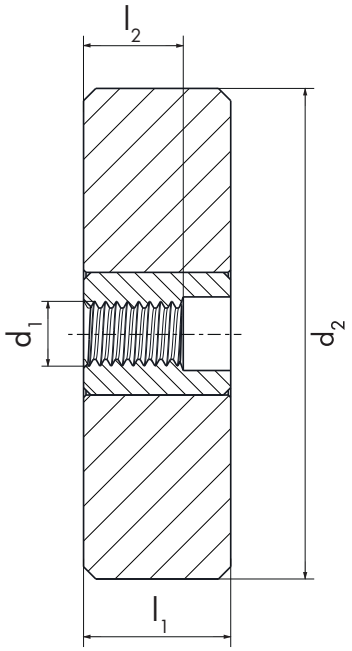
All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges. The paid certificate is available on request.

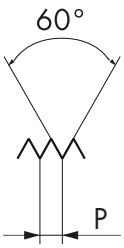
S

NIHS 06-12 / Ø < 0.5 DC SWISS NI613

PHYN. KL

nano





DZ04 Go LH	DZ04 Go LH	DZ14 NoGo LH

LH

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	NIHS 4g ID	NIHS 5h ID	NIHS 5h/4g ID
0.4	0.1	6	0.6	20	● 204331	● 202146	● 202148
0.5	0.125	6	0.75	20	● 203062	● 203620	● 203064
0.6	0.15	6	0.9	20	● 203616	● 203621	● 203623
0.7	0.175	6	1.05	20	● 203618	● 203058	● 203060
0.8	0.2	6	1.2	20	● 204333	● 204339	● 204345
0.9	0.225	6	1.35	20	● 204335	● 204341	● 204347
1	0.25	6	1.5	20	● 204337	● 204343	● 204349
1.2	0.25	6	1.8	20	● 204684	● 204688	● 204692
1.4	0.3	6	2.1	20	● 204686	● 204690	● 204694

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The paid certificate is available on request.

S NIHS / NIHS NT
DC SWISS NI584 / DZ04: STB U758-002D-F / DZ14: STB U758-002D-F, DC SWISS NI590

PHYN. KL

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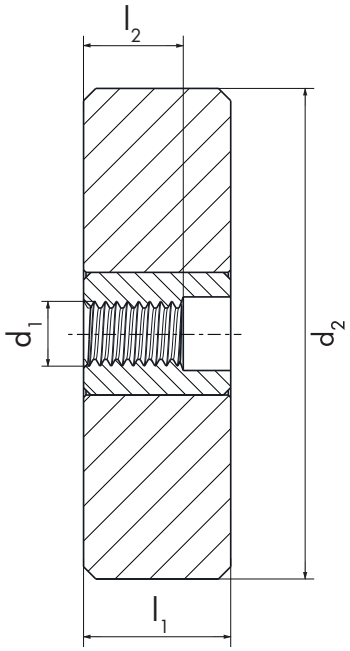

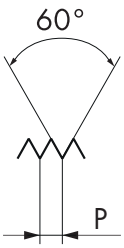

DZ04 Go	DZ14 NoGo	DZ04 Go	DZ14 NoGo

NIHS	NIHS	NIHS NT	NIHS NT

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0.3	0.08	6	0.45	20	● 190809	● 190828	● 190847	● 190866
0.35	0.09	6	0.53	20	● 190810	● 190829	● 190848	● 190867
0.4	0.1	6	0.6	20	● 190811	● 190830	● 190849	● 190868
0.5	0.125	6	0.75	20	● 190812	● 190831	● 190850	● 190869
0.6	0.15	6	0.9	20	● 190813	● 190832	● 190851	● 190870
0.7	0.175	6	1.05	20	● 190814	● 190833	● 190852	● 190871
0.8	0.2	6	1.2	20	● 190815	● 190834	● 190853	● 190872
0.9	0.225	6	1.35	20	● 190816	● 190835	● 190854	● 190873
1	0.25	6	1.5	20	● 190817	● 190836	● 190855	● 190874
1.2	0.25	6	1.8	20	● 190818	● 190837	● 190856	● 190875
1.4	0.3	6	2.1	20	● 190819	● 190838	● 190857	● 190876

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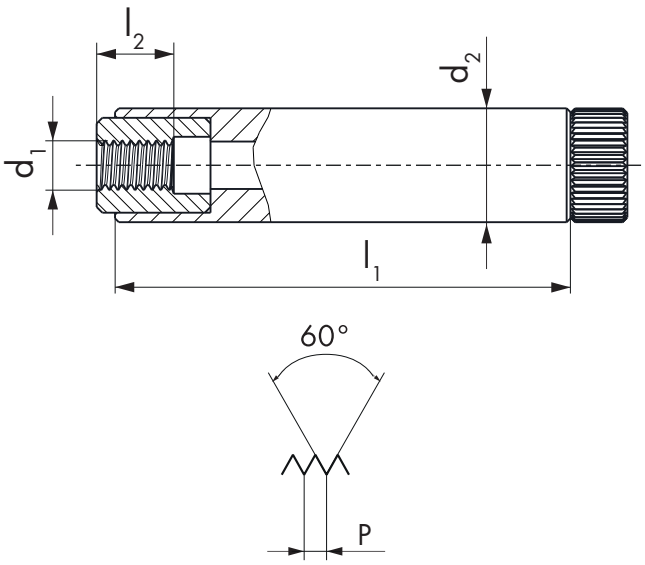
S NIHS 06-12 / Ø < 0.5 DC SWISS NI613

PHYN. KL

nano



DN04 Go	DN04 Go	DN14 NoGo
		
NIHS 4g	NIHS 5h	NIHS 5h/4g

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID
0.3	0.08	24	0.45	6	● 200720	● 200743	● 200773
0.35	0.09	24	0.53	6	● 200721	● 200744	● 200774
0.4	0.1	24	0.6	6	● 200722	● 200745	● 200775
0.45	0.1	24	0.68	6	● 200723	● 200746	● 200776
0.5	0.125	24	0.75	6	● 200724	● 200747	● 200777
0.55	0.125	24	0.83	6	● 200725	● 200748	● 200778
0.6	0.15	24	0.9	6	● 200726	● 200749	● 200779
0.7	0.175	24	1.05	6	● 200727	● 200750	● 200780
0.8	0.2	24	1.2	6	● 200728	● 200751	● 200781
0.9	0.225	24	1.35	6	● 200729	● 200752	● 200782
1	0.25	24	1.5	6	● 200730	● 200753	● 200783
1.1	0.25	24	1.65	6	● 200731	● 201029	● 201031
1.2	0.25	24	1.8	6	● 200732	● 200754	● 200784
1.3	0.3	24	1.95	6	● 200733	● 200755	● 200785
1.4	0.3	24	2.1	6	● 200734	● 200756	● 200786

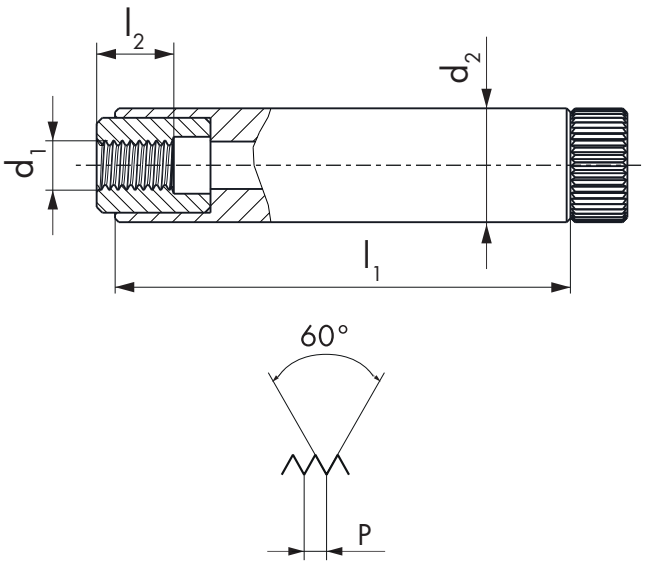
All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges. The paid certificate is available on request.

S

NIHS 06-12 / Ø < 0.5 DC SWISS NI613

PHYN. KL

nano



LH

DN04 Go LH	DN04 Go LH	DN14 NoGo LH
		

	NIHS 4g	NIHS 5h	NIHS 5h/4g

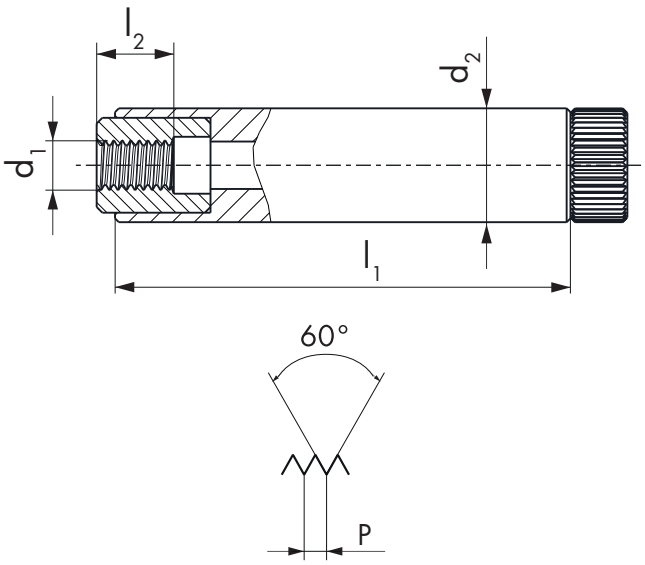
Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID
0.4	0.1	24	0.6	6	204351	202707	202706
0.5	0.125	24	0.75	6	204353	202990	203031
0.6	0.15	24	0.9	6	204355	204365	204208
0.7	0.175	24	1.05	6	204357	204246	204212
0.8	0.2	24	1.2	6	204359	204367	204215
0.9	0.225	24	1.35	6	204361	204369	204219
1	0.25	24	1.5	6	204363	204371	204223
1.2	0.25	24	1.8	6	204696	204700	204704
1.4	0.3	24	2.1	6	204698	204702	204706

All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges. The paid certificate is available on request.

S NIHS / NIHS NT
DC SWISS NI584 / DN04: STB U758-002D-F / DN14: STB U758-002D-F, DC SWISS NI590

PHYN. KL

nano



	DN04 Go	DN14 NoGo	DN04 Go	DN14 NoGo
	NIHS	NIHS	NIHS NT	NIHS NT

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0.3	0.08	24	0.45	6	● 190885	● 190904	● 190923	● 190942
0.35	0.09	24	0.53	6	● 190886	● 190905	● 190924	● 190943
0.4	0.1	24	0.6	6	● 190887	● 190906	● 190925	● 190944
0.5	0.125	24	0.75	6	● 190888	● 190907	● 190926	● 190945
0.6	0.15	24	0.9	6	● 190889	● 190908	● 190927	● 190946
0.7	0.175	24	1.05	6	● 190890	● 190909	● 190928	● 190947
0.8	0.2	24	1.2	6	● 190891	● 190910	● 190929	● 190948
0.9	0.225	24	1.35	6	● 190892	● 190911	● 190930	● 190949
1	0.25	24	1.5	6	● 190893	● 190912	● 190931	● 190950
1.2	0.25	24	1.8	6	● 190894	● 190913	● 190932	● 190951
1.4	0.3	24	2.1	6	● 190895	● 190914	● 190933	● 190952

All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges.
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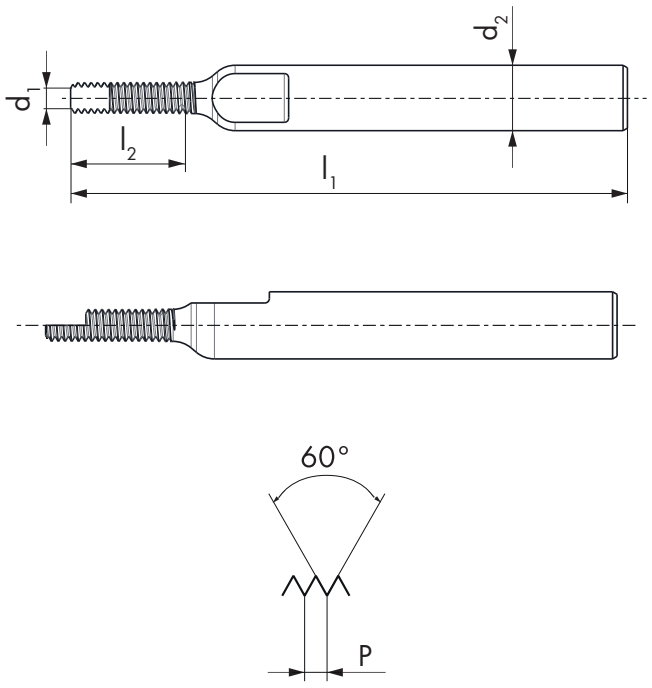
nano

EN00



NIHS

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID
0.3	0.08	39	1.28	3	192747
0.35	0.09	39	1.44	3	192748
0.4	0.1	39	1.6	3	192749
0.5	0.125	39	2	3	192750
0.6	0.15	39	2.4	3	192751
0.7	0.175	39	2.8	3	192752
0.8	0.2	39	3.2	3	192753
0.9	0.225	39	3.6	3	192754
1	0.25	39	4	3	192755
1.2	0.25	39	4	3	192756
1.4	0.3	39	4.8	3	192757

The DC SWISS calibration thread plug gauge is used for the calibration of measuring machines. The calibration gauges from our catalogue, or made to your specific requirements, are delivered with a SCS measurement certificate. This confirms that the control process during production has been conscientiously followed to ISO 17025. It attests to the quality of the metrological equipment of DC NANO TOOLS SA (SCS 0143), centre of competence and member of the DC Group.

SCS certificate included.

SF

NIHS 06-12 / DC SWISS NI614

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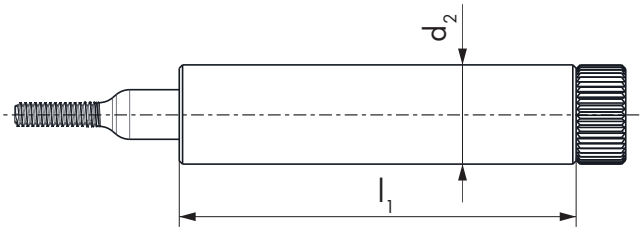
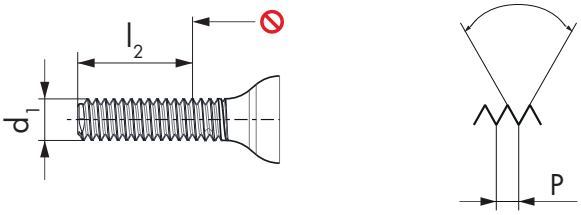


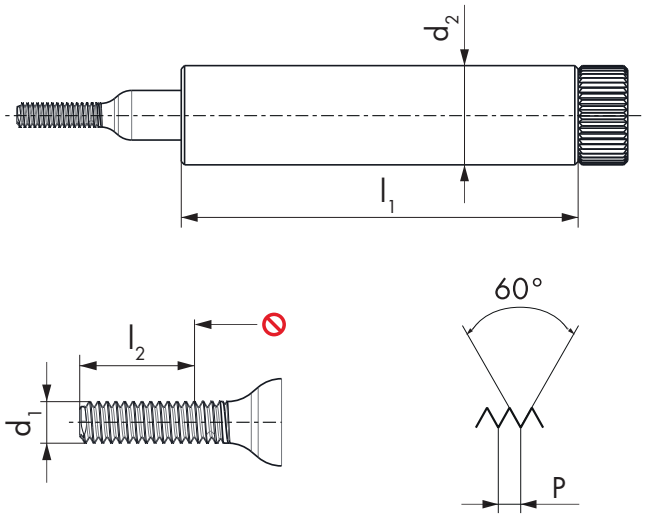


DN01 Go	DN01 Go	DN02 NoGo
		
NIHS 3G	NIHS 4H	NIHS 4H/3G

Ø d_1 SF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID
1.4	0.2	24	4.2	6	● 200651	● 200682	● 200712
1.6	0.2	24	3	6	● 200652	● 200683	● 200713
1.8	0.2	24	3	6	● 200653	● 200684	● 200714
2	0.2	24	3	6	● 200658	● 200689	● 200719
2.2	0.2	24	3	6	● 200654	● 200685	● 200715
2.2	0.25	24	3	6	● 200655	● 200686	● 200716
2.5	0.2	24	3	6	● 200656	● 200687	● 200717
2.5	0.25	24	3	6	● 200657	● 200688	● 200718

All nano thread plug gauges are SCS-certified and the paid certificate is available on request.

nano



NIHS 3G | NIHS 4H | NIHS 4H/3G

Ø d_1 SF	P mm	l_1 mm	l_2 Go mm	d_2 mm	DN01 Go ID	DN01 Go ID	DN02 NoGo ID
1.4	0.2	24	4.2	6	190744	193256	190763
1.6	0.2	24	3	6	190745	193257	190764
1.8	0.2	24	3	6	190746	193258	190765
2	0.2	24	3	6	190747	193259	190766
2.2	0.2	24	3	6	190748	193260	190767
2.2	0.25	24	3	6	190749	193261	190768
2.5	0.2	24	3	6	190750	193262	190769
2.5	0.25	24	3	6	190751	193263	190770

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SF NIHS 06-12

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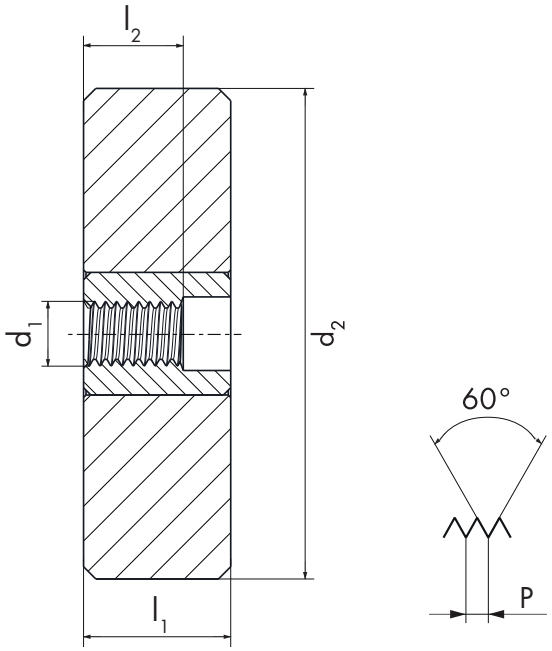
DZ04 Go	DZ14 NoGo		



NIHS 5h NIHS 5h/4g

Ø d_1 SF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
1.4	0.2	6	2.1	20	● 200832	● 200862
1.6	0.2	6	1.8	20	● 200833	● 200863
1.8	0.2	6	1.8	20	● 200834	● 200864
2	0.2	6	1.8	20	● 200839	● 200869
2.2	0.2	6	1.8	20	● 200835	● 200865
2.2	0.25	6	2.25	20	● 200836	● 200866
2.5	0.2	6	1.8	20	● 200837	● 200867
2.5	0.25	6	2.25	20	● 200838	● 200868

All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges. The paid certificate is available on request.

SF NIHS
DC SWISS NI584

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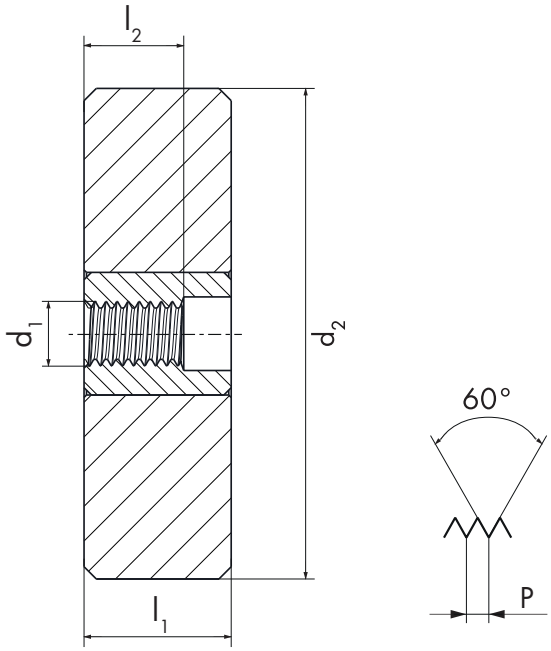
DZ04 Go	DZ14 NoGo		



NIHS NIHS

Ø d_1 SF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
1.4	0.2	6	2.1	20	● 190820	● 190839
1.6	0.2	6	1.8	20	● 190821	● 190840
1.8	0.2	6	1.8	20	● 190822	● 190841
2	0.2	6	1.8	20	● 190823	● 190842
2.2	0.2	6	1.8	20	● 190824	● 190843
2.2	0.25	6	2.25	20	● 190825	● 190844
2.5	0.2	6	1.8	20	● 190826	● 190845
2.5	0.25	6	2.25	20	● 190827	● 190846

All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges.
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SF NIHS 06-12

PHYN. KL

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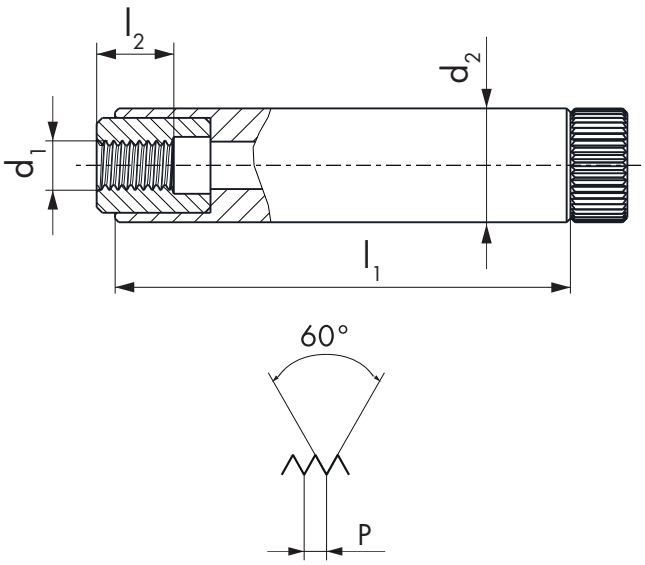

DN04 Go	DN14 NoGo		

NIHS 5h NIHS 5h/4g

Ø d_1 SF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
1.4	0.2	24	2.1	6	● 200757	● 200787
1.6	0.2	24	1.8	6	● 200758	● 200788
1.8	0.2	24	1.8	6	● 200759	● 200789
2	0.2	24	1.8	6	● 200764	● 200794
2.2	0.2	24	1.8	6	● 200760	● 200790
2.2	0.25	24	2.25	6	● 200761	● 200791
2.5	0.2	24	1.8	6	● 200762	● 200792
2.5	0.25	24	2.25	6	● 200763	● 200793

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SF NIHS
DC SWISS NI584

PHYN. KL

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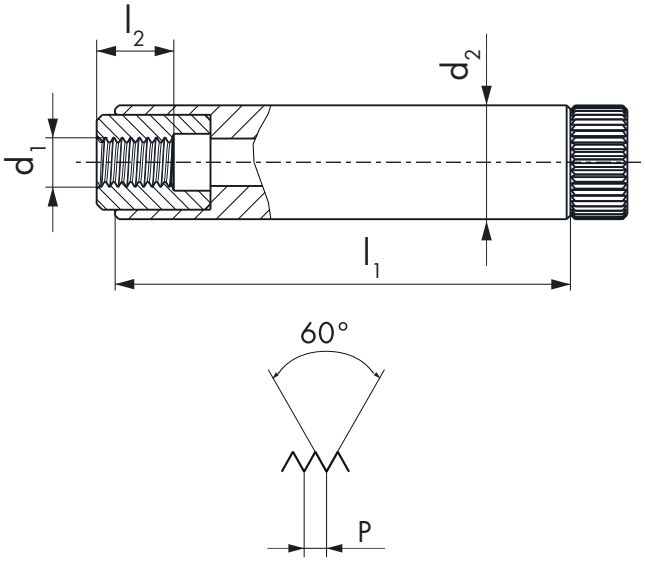


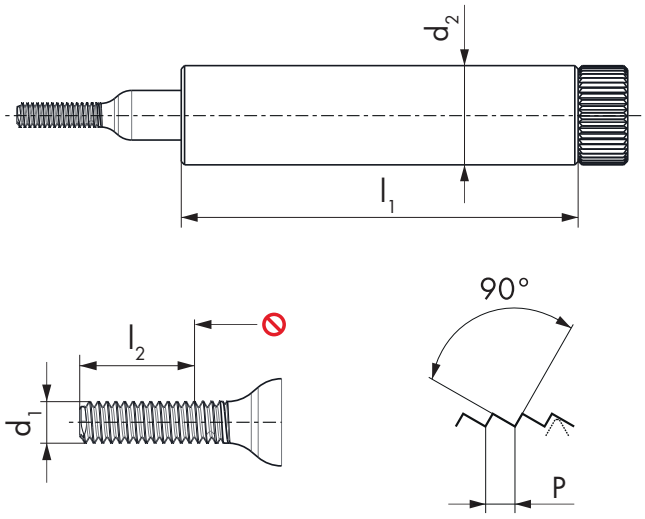
DN04 Go	DN14 NoGo		

NIHS NIHS

Ø d_1 SF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
1.4	0.2	24	2.1	6	● 190896	● 190915
1.6	0.2	24	1.8	6	● 190897	● 190916
1.8	0.2	24	1.8	6	● 190898	● 190917
2	0.2	24	1.8	6	● 190899	● 190918
2.2	0.2	24	1.8	6	● 190900	● 190919
2.2	0.25	24	2.25	6	● 190901	● 190920
2.5	0.2	24	1.8	6	● 190902	● 190921
2.5	0.25	24	2.28	6	● 190903	● 190922

All nano ring gauges have a certificate of measurement, established with SCS certified plug check gauges.
The paid certificate is available on request.

nano

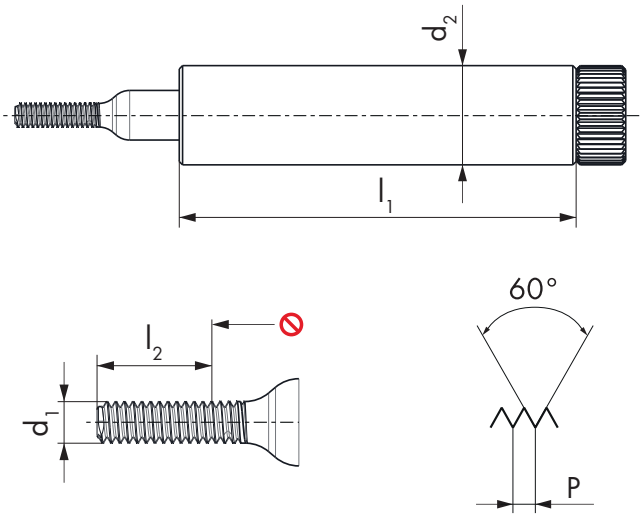


DN01 Go	DN02 NoGo		

Ø d_1 SL	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
0.5	0.1	24	1.5	6	600178	600186
0.6	0.125	24	1.8	6	600179	600187
0.7	0.15	24	2.1	6	600180	600188
0.8	0.15	24	2.4	6	600181	600189
0.9	0.175	24	2.7	6	600182	600190
1	0.2	24	3	6	600183	600191
1.2	0.2	24	3.6	6	600184	600192
1.4	0.25	24	4.2	6	600185	600193

All nano thread plug gauges are SCS-certified and the paid certificate is available on request.

nano



RN05-1 Go/Go	RN15-1 NoGo/Go	RN05-1 Go/Go	RN15-1 NoGo/Go
			
5h	5h	6h	6h

Ø d_1 M	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0.3	0.08	24	0.61	6	● 192884	● 192892		
0.35	0.09	24	0.71	6	● 192885	● 192893		
0.4	0.1	24	0.8	6	● 192886	● 192894		
0.5	0.125	24	1	6	● 192887	● 192895		
0.6	0.15	24	1.2	6	● 192888	● 192896		
0.7	0.175	24	1.4	6	● 192889	● 192897		
0.8	0.2	24	1.6	6	● 192890	● 192898		
0.9	0.225	24	1.8	6	● 192891	● 192899		
1	0.25	24	2	6			● 191499	● 191508
1.2	0.25	24	2.3	6			● 191500	● 191509
1.4	0.3	24	2.7	6			● 191501	● 191510

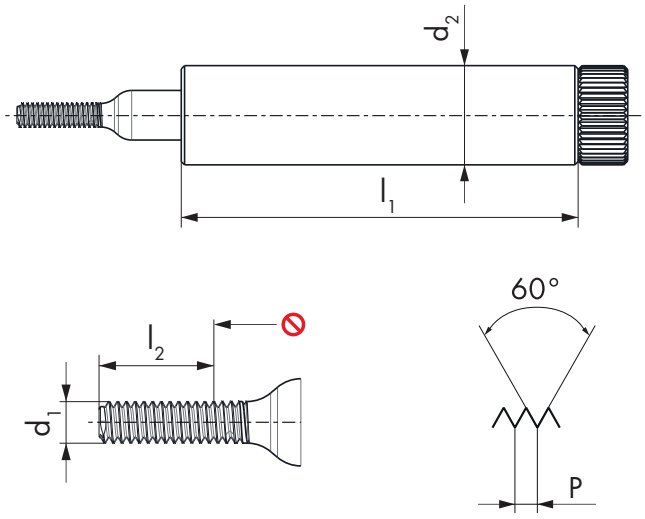
							6g	6g
Ø d_1 M	P mm	l_1 mm	l_2 Go mm	d_2 mm			ID	ID
1.6	0.35	24	3.1	6			● 191517	● 191535
1.8	0.35	24	3.4	6			● 191518	● 191536
2	0.4	24	3.8	6			● 191519	● 191537
2.3	0.4	24	4.25	6			● 191520	● 191538
2.5	0.45	24	4.65	6			● 191521	● 191539
2.6	0.45	24	4.8	6			● 191522	● 191540

SCS certificate included.

M ISO DIN 14 / ISO DIN 13
DC SWISS NI589 / ISO 1502

VHM CAR

nano



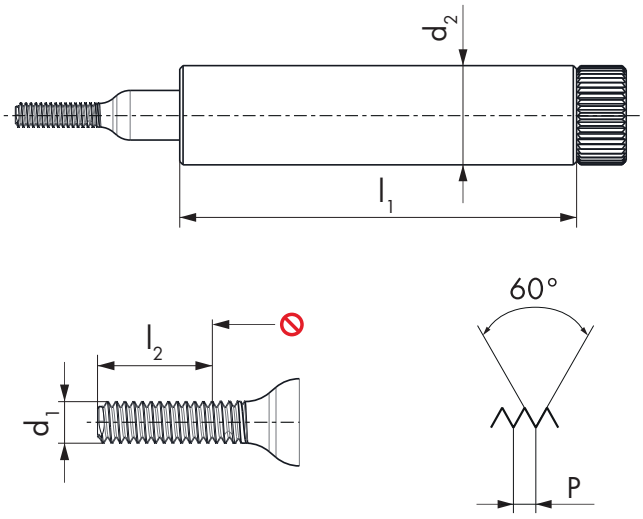
	RN05-2 Go/NoGo	RN15-2 NoGo/NoGo	RN05-2 Go/NoGo	RN15-2 NoGo/NoGo
				
	5h	5h	6h	6h

Ø d_1 M	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0.3	0.08	24	0.61	6	• 192900	• 192908		
0.35	0.09	24	0.71	6	• 192901	• 192909		
0.4	0.1	24	0.8	6	• 192902	• 192910		
0.5	0.125	24	1	6	• 192903	• 192911		
0.6	0.15	24	1.2	6	• 192904	• 192912		
0.7	0.175	24	1.4	6	• 192905	• 192913		
0.8	0.2	24	1.6	6	• 192906	• 192914		
0.9	0.225	24	1.8	6	• 192907	• 192915		
1	0.25	24	2	6			• 191502	• 191511
1.2	0.25	24	2.3	6			• 191503	• 191512
1.4	0.3	24	2.7	6			• 191504	• 191513

							6g	6g
Ø d_1 M	P mm	l_1 mm	l_2 Go mm	d_2 mm			ID	ID
1.6	0.35	24	3.1	6			• 191523	• 191541
1.8	0.35	24	3.4	6			• 191524	• 191542
2	0.4	24	3.8	6			• 191525	• 191543
2.3	0.4	24	4.25	6			• 191526	• 191544
2.5	0.45	24	4.65	6			• 191527	• 191545
2.6	0.45	24	4.8	6			• 191528	• 191546

SCS certificate included.

nano



RN05-3 WEAR	RN15-3 WEAR	RN05-3 WEAR	RN15-3 WEAR
			
6h	6h	6g	6g

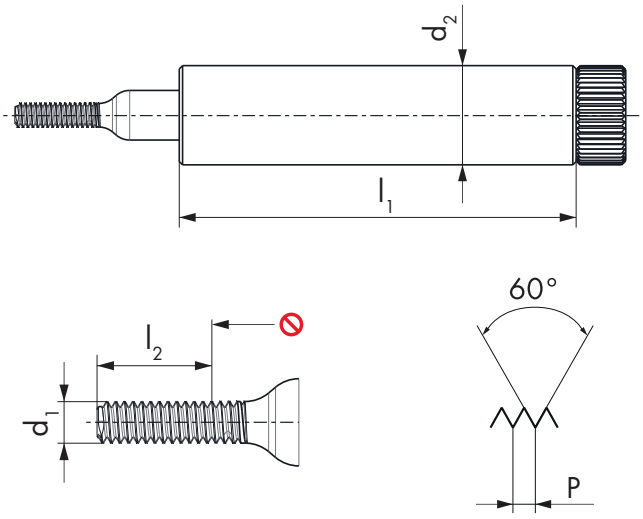
Ø d_1 M	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1	0.25	24	2	6	● 191505	● 191514		
1.2	0.25	24	2.3	6	● 191506	● 191515		
1.4	0.3	24	2.7	6	● 191507	● 191516		
1.6	0.35	24	3.1	6			● 191529	● 191547
1.8	0.35	24	3.4	6			● 191530	● 191548
2	0.4	24	3.8	6			● 191531	● 191549
2.3	0.4	24	4.25	6			● 191532	● 191550
2.5	0.45	24	4.65	6			● 191533	● 191551
2.6	0.45	24	4.8	6			● 191534	● 191552

SCS certificate included.

MF ISO DIN 13 ISO 1502

VHM CAR

nano

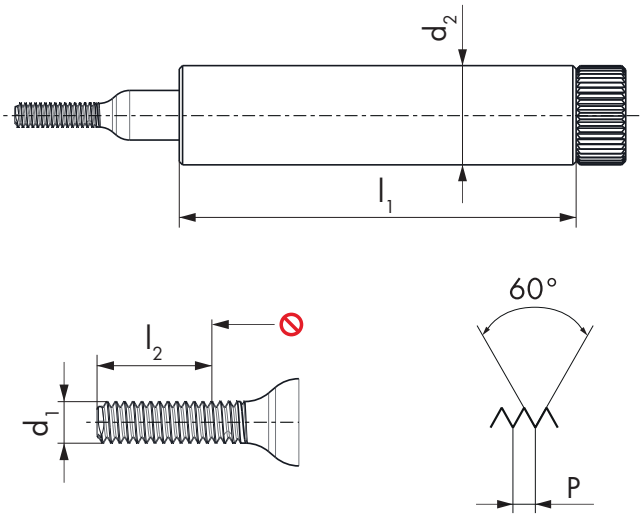


RN05-1 Go/Go	RN15-1 NoGo/Go	RN05-1 Go/Go	RN15-1 NoGo/Go
			
4h	4h	6h	6h

Ø d_1 MF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1.4	0.2	24	2.5	6	191256	191298	192932	192945
1.6	0.2	24	2.2	6	195874	195876	192933	192946
1.8	0.2	24	2.2	6	197711	197712	192934	192947
2	0.2	24	2.2	6	197724	197725	192935	192948
2	0.25	24	2.75	6	197726	197727	192936	192949
2.2	0.2	24	2.2	6	197713	197714	192937	192950
2.2	0.25	24	2.75	6	197715	197716	192938	192951
2.3	0.2	24	2.2	6	197717	197718	192939	192952
2.3	0.25	24	2.75	6	197719	197720	192940	192953
2.5	0.2	24	2.2	6	197721	197722	192941	192954
2.5	0.25	24	2.75	6	190683	197723	192942	192955

SCS certificate included.

nano



RN05-1 Go/Go	RN15-1 NoGo/Go		
			
6g	6g		

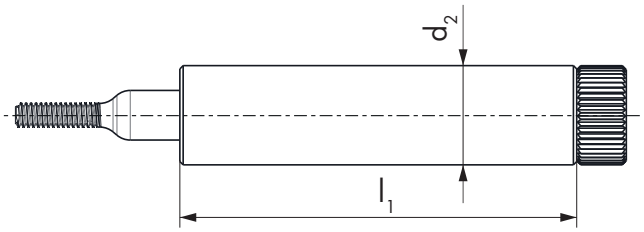
Ø d_1 MF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
1.6	0.2	24	2.2	6	204958	204967
1.8	0.2	24	2.2	6	204959	199684
2	0.2	24	2.2	6	204960	204968
2	0.25	24	2.75	6	204961	195625
2.2	0.2	24	2.2	6	204962	191386
2.2	0.25	24	2.75	6	204963	199119
2.3	0.2	24	2.2	6	204964	204969
2.3	0.25	24	2.75	6	204965	199686
2.5	0.2	24	2.2	6	204966	202065
2.5	0.25	24	2.75	6	191349	191391
2.5	0.35	24	4.45	6	192943	192956
2.6	0.35	24	4.6	6	192944	192957

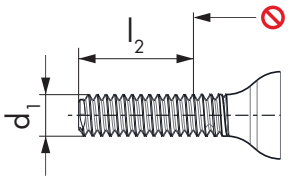
SCS certificate included.

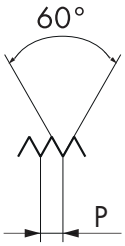
MF ISO DIN 13 ISO 1502

VHM CAR

nano





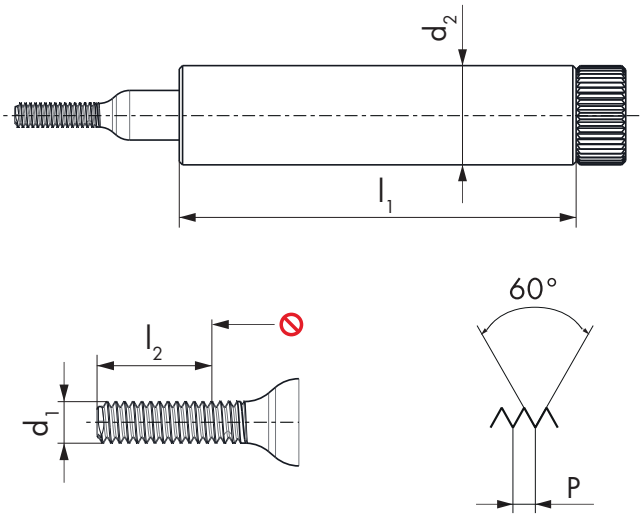


RN05-2 Go/NoGo	RN15-2 NoGo/NoGo	RN05-2 Go/NoGo	RN15-2 NoGo/NoGo
			
4h	4h	6h	6h

Ø d_1 MF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1.4	0.2	24	2.5	6	191270	197728	192958	192971
1.6	0.2	24	1.6	6	195875	195877	192959	192972
1.8	0.2	24	1.6	6	197729	197730	192960	192973
2	0.2	24	1.6	6	199060	199061	192961	192974
2	0.25	24	2	6	199062	199063	192962	192975
2.2	0.2	24	1.6	6	197731	197732	192963	192976
2.2	0.25	24	2	6	197733	199364	192964	192977
2.3	0.2	24	1.6	6	199053	199054	192965	192978
2.3	0.25	24	2	6	199055	199056	192966	192979
2.5	0.2	24	1.6	6	199057	199058	192967	192980
2.5	0.25	24	2	6	190686	199059	192968	192981

SCS certificate included.

nano



RN05-2 Go/NoGo	RN15-2 NoGo/NoGo		

6g 6g

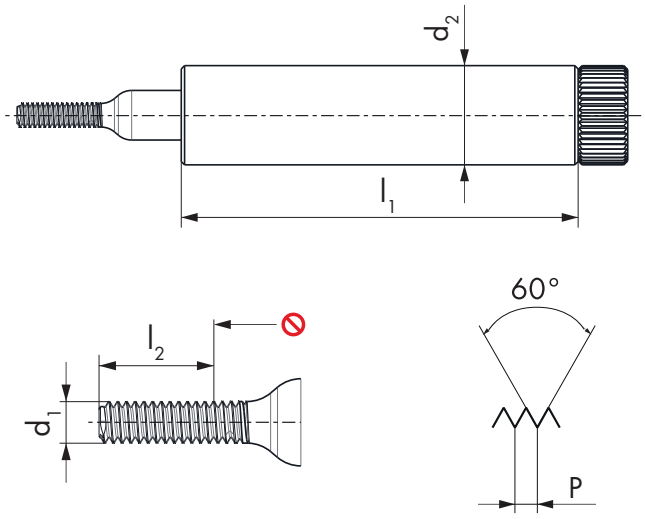
Ø d_1 MF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
1.6	0.2	24	1.6	6	• 204970	• 204979
1.8	0.2	24	1.6	6	• 204971	• 199688
2	0.2	24	1.6	6	• 204972	• 204980
2	0.25	24	2	6	• 204973	• 195627
2.2	0.2	24	1.6	6	• 204974	• 191400
2.2	0.25	24	2	6	• 204975	• 199121
2.3	0.2	24	1.6	6	• 204976	• 204981
2.3	0.25	24	2	6	• 204977	• 199690
2.5	0.2	24	1.6	6	• 204978	• 202067
2.5	0.25	24	2	6	• 191363	• 191405
2.5	0.35	24	4.45	6	• 192969	• 192982
2.6	0.35	24	4.6	6	• 192970	• 192983

SCS certificate included.

MF ISO DIN 13 ISO 1502

VHM CAR

nano

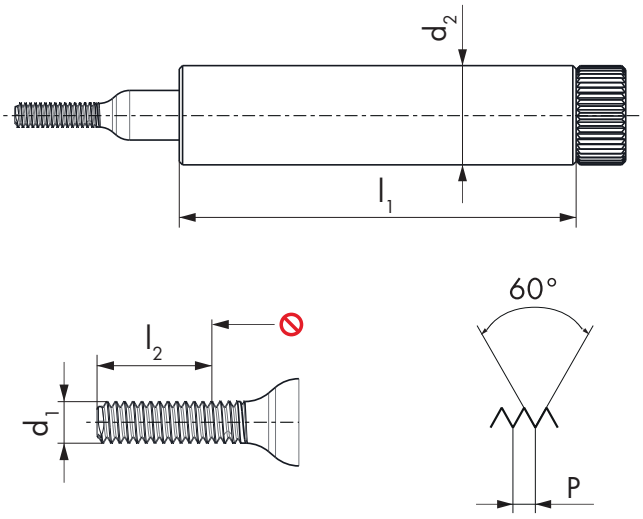


RN05-3 WEAR	RN15-3 WEAR	RN05-3 WEAR	RN15-3 WEAR
			
4h	4h	6h	6h

Ø d_1 MF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1.4	0.2	24	2.5	6	191284	191326	192984	192997
1.6	0.2	24	1.6	6	199064	199065	192985	192998
1.8	0.2	24	1.6	6	199066	199067	192986	192999
2	0.2	24	1.6	6	199360	199361	192987	193000
2	0.25	24	2	6	199362	199363	192988	193001
2.2	0.2	24	1.6	6	199068	199069	192989	193002
2.2	0.25	24	2	6	199070	199071	192990	193003
2.3	0.2	24	1.6	6	199072	199073	192991	193004
2.3	0.25	24	2	6	199074	199075	192992	193005
2.5	0.2	24	1.6	6	199076	199077	192993	193006
2.5	0.25	24	2	6	199358	199359	192994	193007

SCS certificate included.

nano



RN05-3 WEAR	RN15-3 WEAR		
			
6g	6g		

Ø d_1 MF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
1.6	0.2	24	1.6	6	● 204982	● 204992
1.8	0.2	24	1.6	6	● 204983	● 204993
2	0.2	24	1.6	6	● 204984	● 204994
2	0.25	24	2	6	● 204985	● 204995
2.2	0.2	24	1.6	6	● 204986	● 204996
2.2	0.25	24	2	6	● 204987	● 204997
2.3	0.2	24	1.6	6	● 204988	● 204998
2.3	0.25	24	2	6	● 204989	● 204999
2.5	0.2	24	1.6	6	● 204990	● 205000
2.5	0.25	24	2	6	● 204991	● 205001
2.5	0.35	24	4.45	6	● 192995	● 193008
2.6	0.35	24	4.6	6	● 192996	● 193009

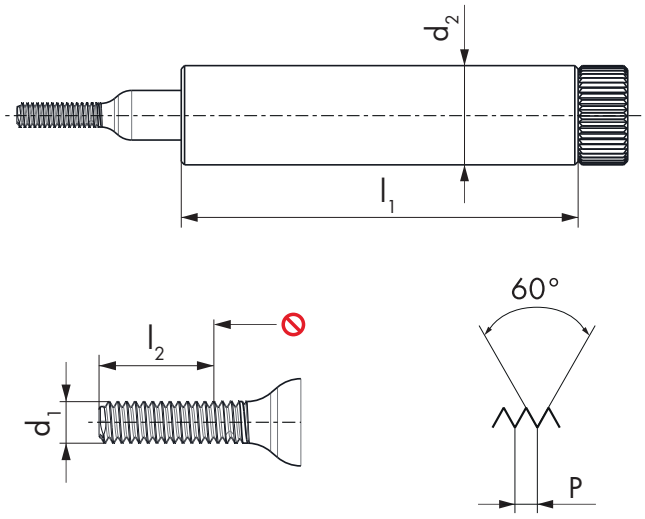
SCS certificate included.

UNC, UNF

ASME B1.1
DC SWISS NI582

VHM CAR

nano



	RN05-1 Go/Go	RN15-1 NoGo/Go	RN05-1 Go/Go	RN15-1 NoGo/Go
				
	2A	2A	3A	3A

Ø d_1 UNC	P TPI	Ø d_1 mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1	64	1.854	24	3.58	6	● 191613	● 191619	● 191625	● 191631
2	56	2.184	24	4.18	6	● 191614	● 191620	● 191626	● 191632
3	48	2.515	24	4.83	6	● 191615	● 191621	● 191627	● 191633

Ø d_1 UNF	P TPI	Ø d_1 mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0	80	1.524	24	2.92	6	● 191685	● 191693	● 191701	● 191709
1	72	1.854	24	3.49	6	● 191686	● 191694	● 191702	● 191710
2	64	2.184	24	4.07	6	● 191687	● 191695	● 191703	● 191711
3	56	2.515	24	4.68	6	● 191688	● 191696	● 191704	● 191712

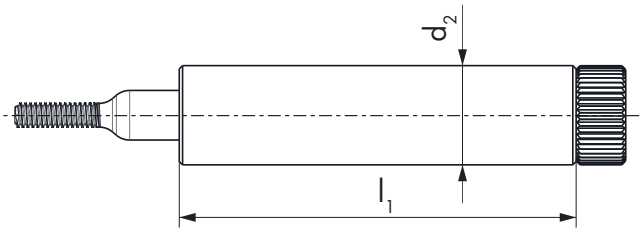
SCS certificate included.

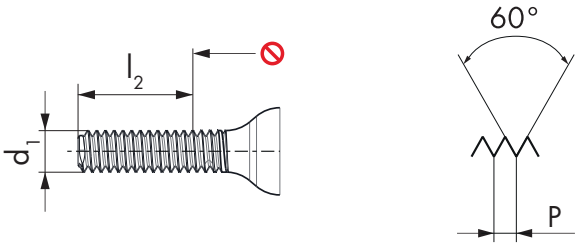
UNC, UNF

ASME B1.1
DC SWISS NI582

VHM CAR

nano





	RN05-2 Go/NoGo	RN15-2 NoGo/NoGo	RN05-2 Go/NoGo	RN15-2 NoGo/NoGo
				
	2A	2A	3A	3A
Ø d_1 UNC	ID	ID	ID	ID
1	● 191616	● 191622	● 191628	● 191634
2	● 191617	● 191623	● 191629	● 191635
3	● 191618	● 191624	● 191630	● 191636

P TPI	Ø d_1 mm	l_1 mm	l_2 Go mm	d_2 mm
64	1.854	24	3.58	6
56	2.184	24	4.18	6
48	2.515	24	4.83	6

Ø d_1 UNF	ID	ID	ID	ID
0	● 191689	● 191697	● 191705	● 191713
1	● 191690	● 191698	● 191706	● 191714
2	● 191691	● 191699	● 191707	● 191715
3	● 191692	● 191700	● 191708	● 191716

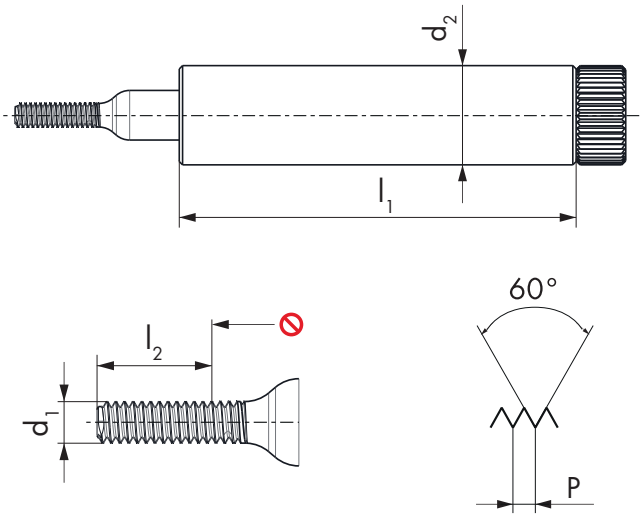
P TPI	Ø d_1 mm	l_1 mm	l_2 Go mm	d_2 mm
80	1.524	24	2.92	6
72	1.854	24	3.49	6
64	2.184	24	4.07	6
56	2.515	24	4.68	6

SCS certificate included.

S NIHS 06-12 / Ø < 0.5 DC SWISS NI613

VHM CAR

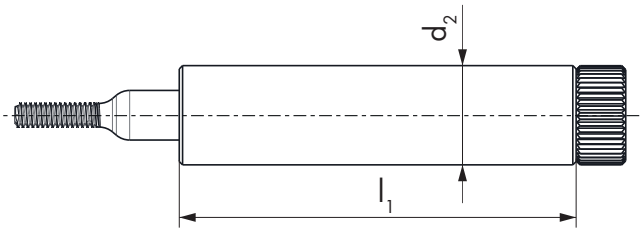
nano

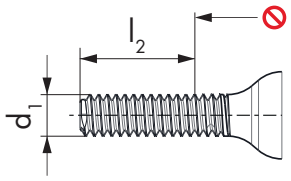


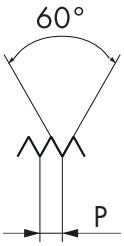
Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	RN05-1 Go/Go NIHS 4g ID	RN05-1 Go/Go NIHS 5h ID	RN15-1 NoGo/Go NIHS 5h/4g ID
0.3	0.08	24	0.61	6	200870	200893	200978
0.35	0.09	24	0.71	6	200871	200894	200979
0.4	0.1	24	0.8	6	200872	200895	200980
0.45	0.1	24	0.9	6	200873	200896	200981
0.5	0.125	24	1	6	200874	200897	200982
0.55	0.125	24	1.1	6	200875	200898	200983
0.6	0.15	24	1.2	6	200876	200899	200984
0.7	0.175	24	1.4	6	200877	200900	200985
0.8	0.2	24	1.6	6	200878	200901	200986
0.9	0.225	24	1.8	6	200879	200902	200987
1	0.25	24	2	6	200880	200903	200988
1.1	0.25	24	2.15	6	200881	200904	200989
1.2	0.25	24	2.3	6	200882	200905	200990
1.3	0.3	24	2.55	6	200883	200906	200991
1.4	0.3	24	2.7	6	200884	200907	200992

SCS certificate included.

nano







LH

RN05-1 Go/Go LH	RN05-1 Go/Go LH	RN15-1 NoGo/Go LH
		

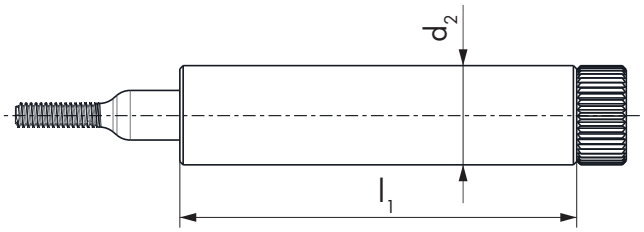
Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	NIHS 4g ID	NIHS 5h ID	NIHS 5h/4g ID
0.4	0.1	24	0.8	6	● 204373	● 202150	● 202152
0.5	0.125	24	1	6	● 203037	● 203044	● 203046
0.6	0.15	24	1.2	6	● 203626	● 203634	● 203638
0.7	0.175	24	1.4	6	● 203630	● 203069	● 203071
0.8	0.2	24	1.6	6	● 204375	● 203350	● 203352
0.9	0.225	24	1.8	6	● 204377	● 204226	● 204234
1	0.25	24	2	6	● 204379	● 204230	● 204238
1.2	0.25	24	2.3	6	● 204708	● 204712	● 204716
1.4	0.3	24	2.7	6	● 204710	● 204714	● 204718

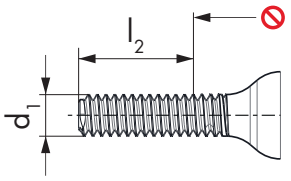
SCS certificate included.

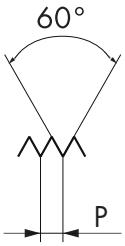
S NIHS / NIHS NT
DC SWISS NI584 / DC SWISS NI585

VHM CAR

nano





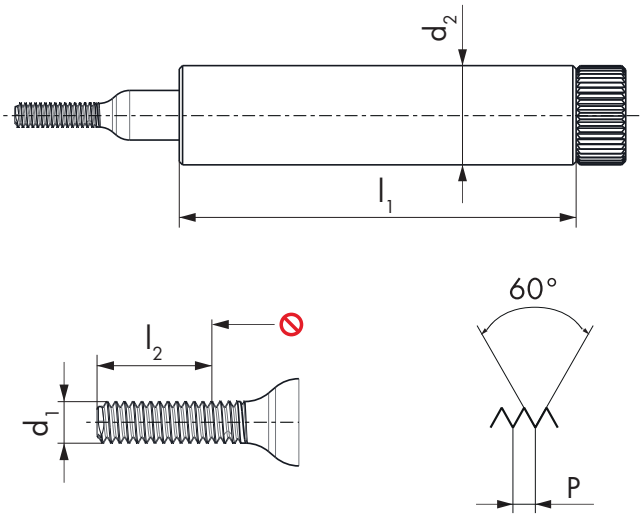


	RN05-1 Go/Go	RN15-1 NoGo/Go	RN05-1 Go/Go	RN15-1 NoGo/Go
				
	NIHS	NIHS	NIHS NT	NIHS NT

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0.3	0.08	24	0.61	6	• 190961	• 190999	• 191037	• 191075
0.35	0.09	24	0.71	6	• 190962	• 191000	• 191038	• 191076
0.4	0.1	24	0.8	6	• 190963	• 191001	• 191039	• 191077
0.5	0.125	24	1	6	• 190964	• 191002	• 191040	• 191078
0.6	0.15	24	1.2	6	• 190965	• 191003	• 191041	• 191079
0.7	0.175	24	1.4	6	• 190966	• 191004	• 191042	• 191080
0.8	0.2	24	1.6	6	• 190967	• 191005	• 191043	• 191081
0.9	0.225	24	1.8	6	• 190968	• 191006	• 191044	• 191082
1	0.25	24	2	6	• 190969	• 191007	• 191045	• 191083
1.2	0.25	24	2.3	6	• 190970	• 191008	• 191046	• 191084
1.4	0.3	24	2.7	6	• 190971	• 191009	• 191047	• 191085

SCS certificate included.

nano



RN05-2 Go/NoGo	RN05-2 Go/NoGo	RN15-2 NoGo/NoGo
		

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	NIHS 4g ID	NIHS 5h ID	NIHS 5h/4g ID
0.3	0.08	24	0.61	6	● 200916	● 200939	● 201009
0.35	0.09	24	0.71	6	● 200917	● 200940	● 201010
0.4	0.1	24	0.8	6	● 200918	● 200941	● 201011
0.45	0.1	24	0.9	6	● 200919	● 200942	● 201012
0.5	0.125	24	1	6	● 200920	● 200943	● 201013
0.55	0.125	24	1.1	6	● 200921	● 200944	● 201014
0.6	0.15	24	1.2	6	● 200922	● 200945	● 201015
0.7	0.175	24	1.4	6	● 200923	● 200946	● 201016
0.8	0.2	24	1.6	6	● 200924	● 200947	● 201017
0.9	0.225	24	1.8	6	● 200925	● 200948	● 201018
1	0.25	24	2	6	● 200926	● 200949	● 201019
1.1	0.25	24	2.15	6	● 200927	● 200950	● 201020
1.2	0.25	24	2.3	6	● 200928	● 200951	● 201021
1.3	0.3	24	2.55	6	● 200929	● 200952	● 201022
1.4	0.3	24	2.7	6	● 200930	● 200953	● 201023

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S NIHS 06-12 / Ø < 0.5 DC SWISS NI613

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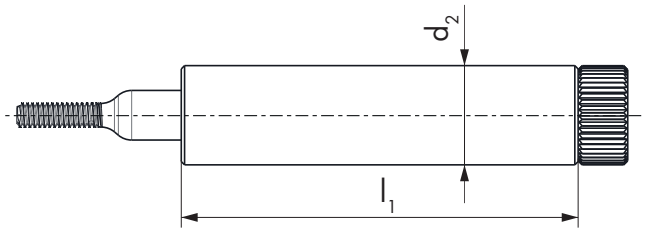
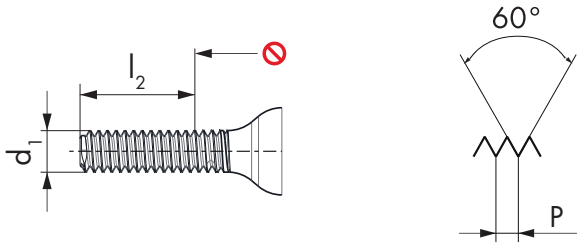




LH

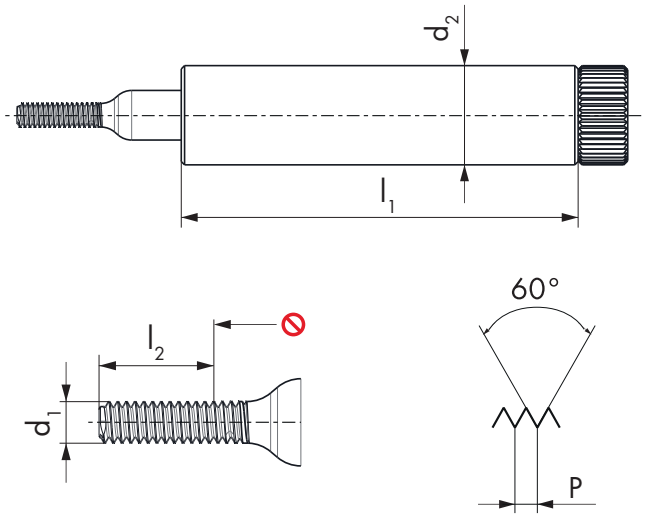
RN05-2 Go/NoGo LH	RN05-2 Go/NoGo LH	RN15-2 NoGo/NoGo LH

NIHS 4g | NIHS 5h | NIHS 5h/4g

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID
0.4	0.1	24	0.8	6	• 204381	• 202154	• 202156
0.5	0.125	24	1	6	• 203067	• 203048	• 203050
0.6	0.15	24	1.2	6	• 203628	• 203636	• 203640
0.7	0.175	24	1.4	6	• 203632	• 203073	• 203075
0.8	0.2	24	1.6	6	• 204383	• 203354	• 203356
0.9	0.225	24	1.8	6	• 204385	• 204228	• 204236
1	0.25	24	2	6	• 204387	• 204232	• 204240
1.2	0.25	24	2.3	6	• 204720	• 204724	• 204728
1.4	0.3	24	2.7	6	• 204722	• 204726	• 204730

SCS certificate included.

nano



RN05-2 Go/NoGo	RN15-2 NoGo/NoGo	RN05-2 Go/NoGo	RN15-2 NoGo/NoGo
			
NIHS	NIHS	NIHS NT	NIHS NT

Ø d_1 S	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
0.3	0.08	24	0.61	6	● 190980	● 191018	● 191056	● 191094
0.35	0.09	24	0.71	6	● 190981	● 191019	● 191057	● 191095
0.4	0.1	24	0.8	6	● 190982	● 191020	● 191058	● 191096
0.5	0.125	24	1	6	● 190983	● 191021	● 191059	● 191097
0.6	0.15	24	1.2	6	● 190984	● 191022	● 191060	● 191098
0.7	0.175	24	1.4	6	● 190985	● 191023	● 191061	● 191099
0.8	0.2	24	1.6	6	● 190986	● 191024	● 191062	● 191100
0.9	0.225	24	1.8	6	● 190987	● 191025	● 191063	● 191101
1	0.25	24	2	6	● 190988	● 191026	● 191064	● 191102
1.2	0.25	24	2.3	6	● 190989	● 191027	● 191065	● 191103
1.4	0.3	24	2.7	6	● 190990	● 191028	● 191066	● 191104

SCS certificate included.

SF NIHS 06-12

VHM CAR

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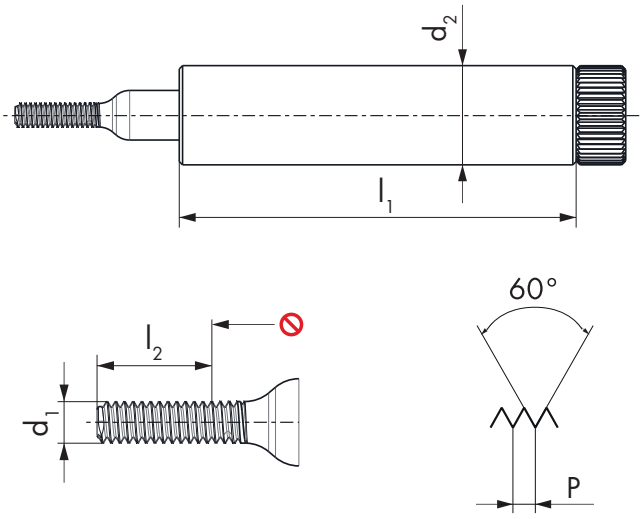

RN05-1 Go/Go	RN15-1 NoGo/Go		

NIHS 5h | NIHS 5h/4g

Ø d_1 SF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
1.4	0.2	24	2.5	6	● 200908	● 200970
1.6	0.2	24	2.2	6	● 200909	● 200971
1.8	0.2	24	2.2	6	● 200910	● 200972
2	0.2	24	2.2	6	● 200915	● 200977
2.2	0.2	24	2.2	6	● 200911	● 200973
2.2	0.25	24	2.75	6	● 200912	● 200974
2.5	0.2	24	2.2	6	● 200913	● 200975
2.5	0.25	24	2.75	6	● 200914	● 200976

SCS certificate included.

SF NIHS / NIHS NT
DC SWISS NI584 / DC SWISS NI585

VHM CAR

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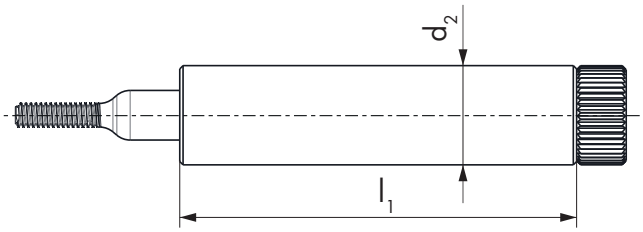

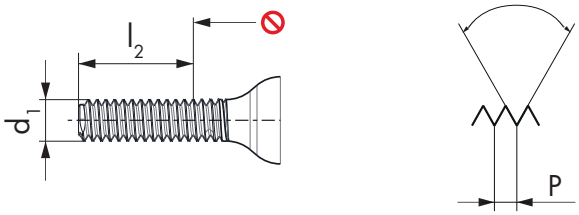

RN05-1 Go/Go	RN15-1 NoGo/Go	RN05-1 Go/Go	RN15-1 NoGo/Go
			
NIHS	NIHS	NIHS NT	NIHS NT

Ø d_1 SF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1.4	0.2	24	2.5	6	190972	191010	191048	191086
1.6	0.2	24	2.2	6	190973	191011	191049	191087
1.8	0.2	24	2.2	6	190974	191012	191050	191088
2	0.2	24	2.2	6	190975	191013	191051	191089
2.2	0.2	24	2.2	6	190976	191014	191052	191090
2.2	0.25	24	2.75	6	190977	191015	191053	191091
2.5	0.2	24	2.2	6	190978	191016	191054	191092
2.5	0.25	24	2.75	6	190979	191017	191055	191093

SCS certificate included.

SF NIHS 06-12

VHM CAR

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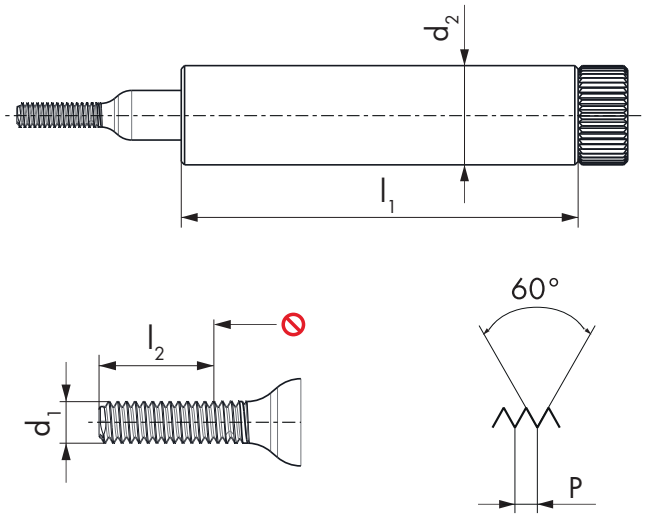
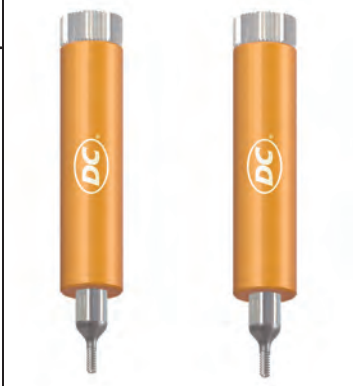


RN05-2 Go/NoGo	RN15-2 NoGo/NoGo		



NIHS 5h | NIHS 5h/4g

Ø d_1 SF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID
1.4	0.2	24	2.5	6	● 200954	● 201001
1.6	0.2	24	1.6	6	● 200955	● 201002
1.8	0.2	24	1.6	6	● 200956	● 201003
2	0.2	24	1.6	6	● 200961	● 201008
2.2	0.2	24	1.6	6	● 200957	● 201004
2.2	0.25	24	2	6	● 200958	● 201005
2.5	0.2	24	1.6	6	● 200959	● 201006
2.5	0.25	24	2	6	● 200960	● 201007

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SF NIHS / NIHS NT
DC SWISS NI584 / DC SWISS NI585

VHM CAR

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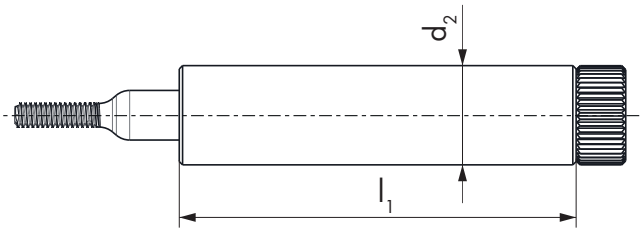

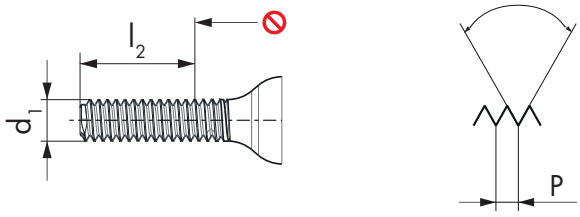

RN05-2 Go/NoGo	RN15-2 NoGo/NoGo	RN05-2 Go/NoGo	RN15-2 NoGo/NoGo
			
NIHS	NIHS	NIHS NT	NIHS NT

Ø d_1 SF	P mm	l_1 mm	l_2 Go mm	d_2 mm	ID	ID	ID	ID
1.4	0.2	24	2.5	6	● 190991	● 191029	● 191067	● 191105
1.6	0.2	24	1.6	6	● 190992	● 191030	● 191068	● 191106
1.8	0.2	24	1.6	6	● 190993	● 191031	● 191069	● 191107
2	0.2	24	1.6	6	● 190994	● 191032	● 191070	● 191108
2.2	0.2	24	1.6	6	● 190995	● 191033	● 191071	● 191109
2.2	0.25	24	2	6	● 190996	● 191034	● 191072	● 191110
2.5	0.2	24	1.6	6	● 190997	● 191035	● 191073	● 191111
2.5	0.25	24	2	6	● 190998	● 191036	● 191074	● 191112

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TECHNICAL QUESTIONNAIRE

Thread cutting and thread forming

Enquiry ☐ Test result ☐ Complaint ☐

Agency: _____ Contact: _____

Customer: _____ E-mail: _____

Phone or fax: _____ Date: _____

1. Tool type: _____ Thread size: _____

Particularity: _____ Class of tolerance: _____

2. Material group: _____

Material N°: _____ Hardness: _____ N/mm^2 / HB / HRC

Norm: _____ Elongation: _____ %

3. Thread: ☐blind hole ☐through hole Threaded length: _____ mm

Core hole Ø: _____ Depth: _____ mm

Counter-bore Ø: _____ Depth: _____ mm

4. Cutting speed (V_c): _____ m/min _____ 1/min

Feed (f): _____ %

5. Machine: _____ ☐internal coolant

Working position: ☐horizontal ☐vertical

Rigid Tapping: ☐"Soft Rigid Tapping" **Tapping spindle:** ☐axial compensation

☐collet ☐de-clutching

☐Weldon ☐reversible

☐hot / cold shrunk ☐sliding clutch

6. Lubricant: ☐emulsion ☐cutting oil ☐air ☐mist

Product: _____

7. Tool change reason: ☐tool wear ☐tool breakage

☐thread not correct (checked with thread plug gauge) ☐tooth breakage in the chamfer lead

☐machine error ☐tooth breakage in the guiding thread

8. Efficiency comparison:

Tool under test: _____

Performance and observations: _____

Remarks: _____

_____

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TECHNICAL QUESTIONNAIRE

Thread milling and thread whirling

Enquiry ☐ Test result ☐ Complaint ☐

Agency: _____ Contact: _____

Customer: _____ E-mail: _____

Phone or fax: _____ Date: _____

1. Tool type: _____

Tool Ø: _____ Pitch: _____

Serie: _____ Coating: _____

2. Material group: _____

Material N°: _____ Hardness: _____ N/mm² / HB / HRC

Norm: _____ Elongation: _____ %

3. Thread: ☐internal ☐external ☐blind hole ☐through hole

Threaded length: _____ mm

Core hole Ø: _____ Depth: _____ mm

Counter-bore Ø: _____ Depth: _____ mm

4. Cutting speed (V_c): _____ m/min _____ 1/min

Feed (f): _____ mm/rev. **Feed (f_z):** _____ mm/tooth

5. Machine: _____ ☐internal coolant

Working position: ☐horizontal ☐vertical

Tool attachment: ☐collet ☐hydraulic chuck ☐Weldon / Whistle Notch ☐hot / cold shrunk

6. Lubricant: ☐emulsion ☐cutting oil ☐air ☐mist

Product: _____

7. Tool change reason: ☐tool wear ☐tool breakage

☐incorrect threading (inspected with gauge) ☐programme error

8. Efficiency comparison:

Tool under test: _____

Performance and observations: _____

Remarks: _____

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DC PROGRAMME OVERVIEW

THREAD CUTTING

THREAD FORMING

RIGID TAPPING

TAPPING CHUCKS

THREAD WHIRLING

THREAD MILLING

THREAD DIES

THREAD GAUGES

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THREADING SOLUTIONS

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WARNING

Thread tools can break or shatter either through technical failure or negligence, and can endanger the health of the operator. Always obey the safety and health regulations, also the wearing of safety glasses is compulsory.

The grinding of threading tools causes hazardous particles, and must be performed only under most rigorous safety standards.

We have made every effort to ensure that the information (drawings, prints, technical data) given is correct. However, we do not assume any responsibility for any errors, omissions or subsequent changes.

THREADING SOLUTIONS

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